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NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

• Wednesday, February 26, 1964

HAWTHORNE

PALMDALE

EDWARDS AFB

SAN ANTONIO

T-38 SAVES TAXPAYER \$\$\$\$\$

Credit Union Declares A Record Six and a Half

The Northrop Credit Union board of directors at their February meeting declared a record 6½ per cent dividend for 1963 depositors with amounts being credited to individual accounts reflected in statements to be mailed early April.

R. D. Hampton, new Credit Union president elected to office at the same meeting praised the previous administration under W. D. Schramm by saying, "The 1963 Credit Union record stands as a splendid achievement. Not only did prudent operation produce this record dividend, but for the first time, the Credit Union exceeded \$3 million in assets."

Additional action taken by the board makes it possible for re-

tirees to participate in Credit Union benefits and services through savings and/or borrowing to the extent of their deposits on record.

Also, the board wanted it known that all non-members can join the Credit Union for a \$1 membership fee, shares being \$5 each.

Walter T. Gage, Credit Union secretary-treasurer and member of the board of directors announced the complete list of directors, officers and committee members elected at the meeting and who will serve through the year.

Board of directors:

R. F. Carroll, L. L. Cripe, Mr. (Continued on Page 3)

AIR FORCE REPORTS LOW, LOW TRAINER ATTRITION

As a testimony to good design and good workmanship by Norair people, the Air Force News Service, Washington, D.C., in releasing plans for the 1965 weapons "buy" has revealed that the last air base scheduled to get the T-38 will receive its first aircraft in 1965, a full year ahead of schedule.

This is because the attrition rate of the Talon has proved far less than anticipated. So low in fact, that the entire phase-in plan for training bases has been markedly stepped up.

The attrition rate for those unfamiliar with the term is the number of aircraft lost by accidents in a given number of flight hours. The USAF uses 100,000 flight hours as its basic unit for attrition measurement.

Stated Corporate Vice-president and Norair General Mana-

ger Dick Nolan, "This is a fine tribute to our supersonic trainer. We promised the Air Force a durable, suitable, high quality airplane that would be economic to operate and easy to maintain. The longer the T-38 is in service, the more conclusively correct our predictions become.

"Also let us not lose sight of the fact that the Talon, by the very nature of this record, is saving the American taxpayer a great many defense dollars.

"By the time mentioned in the Air Force news release — when the last base scheduled to get its first airplane, receives that T-38 — savings due to this low accident attrition rate will amount to approximately \$32 million."

Mr. Nolan explained that the savings figures represent the value of extra airplanes that will be on the line and flying, airplanes that, according to the original U.S. Air Force predic-

tions, would have been destroyed. "The very low maintenance and operation costs (less than half that of any other supersonic plane in the USAF inventory) (Continued on Page 2)

MANAGEMENT CLUB ADDS MEMBERS

The Northrop Norair Management Club announces that a recent amendment to its constitution now opens membership to former members who served the club as an officer, as a committee chairman, or were charter members.

Any former NNMC members who fall in the above categories and are interested in rejoining are invited to get in touch with Membership Chairman Dona Page, extension 642.

TAC Pilots will Train MAP Pilots



COMBAT PUNCH—Northrop F-5A supersonic tactical fighters are shown in formation with heavy combat loads near Edwards Air Force Base. F-5As and the F-5B two-seater fighter-trainer version will be deployed to selected allied nations under the U.S. Military Assistance Program. Pilots of the U.S. Air Force Tactical Air Command soon will receive the first deliveries of F-5s to prepare for training of pilots from the recipient

countries. External stores shown here on the F-5As are 50-gallon wingtip tanks, 750-pound bombs on the outboard pylons, 150-gallon fuel tanks on the inboard pylons, and 2000-pound bombs on the centerline. F-5s also carry a variety of air-to-ground weapons including Bullpup missiles and napalm, and Sidewinder missiles for intercept missions. The F-5A version has two 20-millimeter cannon in its nose.

The \$64 Question

Surely, one of the most thought about and talked about events of our time is the recent report of the Surgeon General's Advisory Committee on cigarette smoking.

We have heard pros and cons, acceptances and nonacceptances

to be noted. The odds are great enough that every cigarette smoker should make a conscientious effort to quit. The next best thing is to cut down as much as possible or change to the use of cigars or pipe smoking.

"I, personally, have always ad-

By John B. Clark
Norair Director, Industrial Relations

of the advice given in this report. Many of our friends have accepted the report and sworn off the weed, while others, confirmed cigarette smokers, are less inclined to heed the warnings of the medicos.



Because of the great impact and wide interest in this report, I recently discussed it with our Norair Chief of Medical group, Doctor Richard Krebsbach. In

answer to my question of the good doctor, "What did you think of the report and do you agree with its findings?" He replied, "First, the report of the Surgeon General is the result of a serious effort on the part of that office to bring to the American people the best judgment of medical experts on the possible results on the health of the user of cigarettes and other tobacco products. The report was conscientiously prepared and, therefore, should not be taken lightly by those whose smoking habits approach the saturation point.

"The evidence reported substantiates that use of tobacco can and has resulted in respiratory ailments and lung cancer. The relationship to heart disease is also

vocated moderation in smoking and feel that reasonable use of tobacco will certainly minimize the danger of these diseases. Overindulgence in any form is not condoned by medical authorities. This goes for the use of tobacco, as well as alcohol, tranquilizers, or other sedatives.

"I would caution, however, those with a history of chronic respiratory ailments, heart disease, or high blood pressure that discretion would indicate the advisability of their entirely eliminating the use of tobacco in any form. This, I know, is drastic advice, but I believe the evidence as reported is overwhelming. I am personally urging parents and guardians to exert every effort to prevent the development of the smoking habit among the young people of pre-adult or adolescent age in their charge."

I then ventured to ask the \$64 question, "Do you smoke cigarettes, Doctor?" the answer was forthright and sincere. "Yes, but I am planning to switch to a pipe."

There you have it, folks. Doctor Krebsbach is the man responsible for doing his best to keep all of us at Northrop squarely on the path of industrial good health. He has spoken honestly as is traditional with him, and we appreciate his views on this contemporary problem.

Important Step Saver



HANDLE THESE WITH CARE—With speed and efficiency too, thanks to new material racks now in use in the Machine shop. Note that supports are padded with plastic to afford utmost in protection for high strength precision parts. Cliff Pelton, facilities engineer and Joe Dyjor, machinist, agree with an A-Okay. Rack which can be positioned close to machines saves many steps, helps keep finished parts separate from unfinished ones, ups quality.

Bahamas Draw Closer Due Northrop Page

Page Communications Engineers, Inc., a subsidiary of Northrop Corporation, has engineered, designed, and is currently installing the first two phases of a telecommunications system that will provide greatly expanded telephone and telegraph services throughout the entire Bahama Islands.

The new facilities will tie in with existing international telephone toll systems.

The contract for the design and construction of the system was awarded to Page by the Telecommunications Department of the Government of the Bahamas.

The total value of the program is estimated to be \$3.5 million.

The first phase of the program will provide voice and teletype services to the island of Grand Bahama, including services to the fast growing business and resort area now being established at Freeport. This system is scheduled to be operational in the middle of March of this year.

The second phase of the system also under construction will provide service to Andros Island, and it is scheduled for completion in May in order to provide immediate service for the United States Navy Atlantic Underwater Test and Evaluation Center base now being developed on the island.

Subsequent phases will provide communication service to the islands of Bimini, Cat Cay, Abaco, and Exuma. Ultimately an additional 60 or 70 terminal points on the outlying islands will be connected to the main system.

Page has established a field office in Nassau with Robert C. Conaughty as project manager and W. E. Brown as project engineer.

AT&SF TELLS OF BARGAINS IN VACATION TOURS

Timely advice to vacation planners—

Morris H. Wright, local AT&SF passenger agent, cautions that all who are planning a railway trip during the summer months, should make reservations now, if possible.

Same advice applies to all modes of transportation; air, land or water.

If it is the Santa Fe you are traveling on this summer, arrangements can be made at Santa Fe Railway's Inglewood ticket office. Telephone number is OR 7-1272.

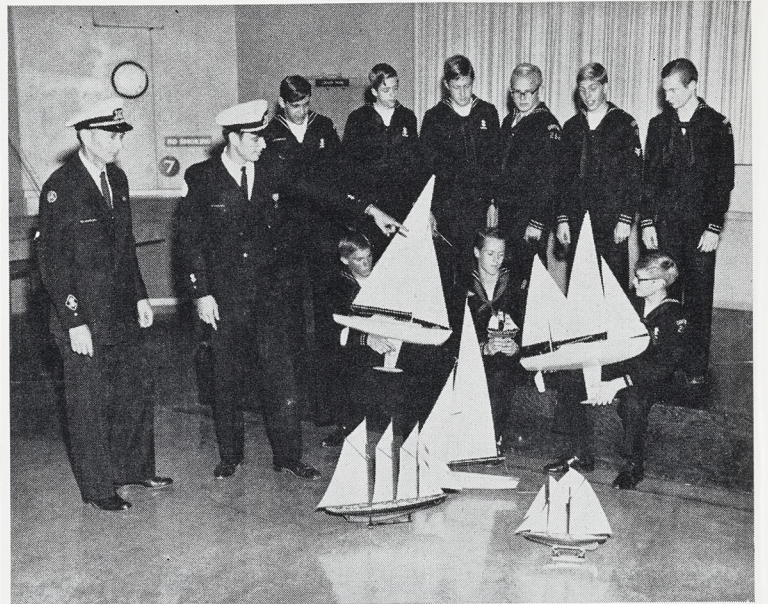
Mr. Wright suggests that Northrop people identify themselves as working at Norair, should they make Santa Fe reservations. This won't hurt and it certainly might help.

They have a "go now—pay later plan."

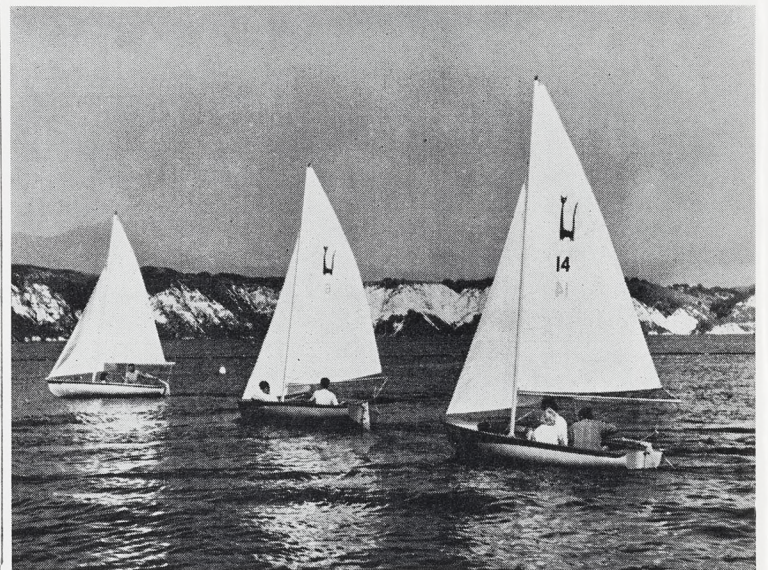
They have "Economy Family Plan" fares, honored for departure Monday, Tuesday, Wednesday, or Thursday, return any day.

To add excitement to an already glamorous prospect, the Santa Fe has announced that on or about April 1, they will begin using \$8 million in new high-level El Capitan equipment.

NRC Sea Scout Ship



SEA SCOUT MEETING—Typical of the NRC Sea Scout activity is this sailing and seamanship session. Here Commissioner George Larson and son Dan who is first mate explain the fine points of sail handling. Scouts from left are, standing, Art Fox, Craig Frudenberg, Gary Gardener, Allen South, Mike Wilking and Ken Lee. From left, seated, Kieth Lindsay, Allen Swickard, and Phil Calihan. The models were built by the boys as a Sea Gull project.



JOINT VENTURE—Photo shows some of the fun enjoyed by the Sea Scouts and the NRC Camping Club at a joint outing at Lake Cachuma. A spirited race is under way by their "Romeo" class. These boats were also built by Club members. They have constructed 22 of the boats so far and developed a fine set of molds for future production. Boats are 13 foot overall, sloop-rigged.

Low Attrition for T-38

(Continued from Page 1)

coupled with the enviable flight safety record established by our T-38 to date has established new guidelines and the nation now has a lower cost base on which to compute budgets for pilot training programs."

The Talon has proved to be ideally suited for the job of equipping young pilots with the precision know-how required to fly today's high performance aircraft. The training effectiveness of our T-38 is evidenced by an Air Force proposal to revise its pilot training flight time for graduation from the current 260 hours, down to 240 hours.

It is reported that as a result of this modernized training syllabus, program savings under current pilot training rate of 1500 a year will amount to approximately \$10 million annually.

Last week Secretary of Defense Robert S. McNamara indicated still more work for the T-38 when he announced that Air Force pilot training will be upped to 1700 spaces during Fiscal 1965. This will avert a serious pilot shortage in future years when men who started during the

Korean conflict step down, Secretary McNamara said. The present low attrition rate will continue to make more planes available to handle this extra load.

BOB VAN ALLEN MADE NRC VEEP VIA SPECIAL

At an NRC special election held last week, Bob Van Allen, chief, Project Budgets group, was elected vice-president replacing Dave Carney who resigned to accept the Travel Club commission-ership.

Also, Bill Wareing, Construction, replaced Paul White as sergeant-at-arms.

NORTHROP NORAIR NEWS

VOL. 22

NO. 1

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A NORTHROP CORPORATION
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NORAIR DIVISION
Published every other Wednesday

CHARLES BRADFORD, Editor

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T-38 Trainer Takes Air Force Students Supersonic in New Aerospace Pilot Book

"This is the pride of the Air Training Command. Look her over carefully. What do you see, Lieutenant Evans?"

This flight line question asked by Captain Tom Bailey, instructor pilot of a fledgling Air Force jet jockey is student and reader's introduction to the T-38 Talon, a star performer in "Aerospace Pilot," a new book just off the press, by Charles Coombs.

Mr. Coombs takes Dan Evans,

a clean-cut young American from mufti and civilian life through the entire spectrum of military pilot training—from piloting primary jet aircraft to blast off into space.

The Northrop T-38 is prominently featured in the entertaining new volume which bids to become necessary reading for all those who aspire to a life in the wild blue and beyond.

The cover is a water color of a

T-38 with instructor and student. Generous use is made of photographs throughout, many published for the first time.

In the chapters "The Talon" and "Silver Wings," the reader is taken with the student in a T-38 through all phases of basic advanced training. The pages in which Lieutenant Evans goes supersonic for the first time in the Talon are particularly exciting and graphic.

Mr. Coombs writes of his subject with firsthand knowledge and authority, having flown faster than sound in the T-38 at Edwards.

The book, which is published by William Morrow and Company, will be available at Personnel Activities when the first shipment is received on March 4.

Price is \$3.95.

Copies may be ordered in advance.

FEW OPENINGS LEFT IN CLASS IN PSYCHOLOGY

There are a few openings left for the NRC psychology course scheduled to start March 2 at the NRC Clubhouse.

The meetings, all presented on Mondays, start at 5 p.m. and end at 7 p.m. Fee is \$10 a person for six sessions.

Subject headings and dates:

March 2 — What Are You Made Of?

March 9—Taking a Look at Your Unique Personality.

March 16—Paving Your Road to Maturity.

March 23—How to Recognize a Personal Neurosis When You Have One.

March 30—Getting Along Well with People.

April 6—Getting Along Well with Your Spouse.

NRC SKI TRIP PLANNED FOR THE WEEKEND

The next ski trip scheduled for February 29 and March 1 will be to a local snow area, it has been announced by George Kern, commissioner.

A trip to Mammoth is coming up March 7 and 8. NRC skiing dates continue on through the spring with the last one being intended for May 23 and 24.

"And there will be more," says George, "if we have late snow. We will keep going until it melts."

March 21 and 22 will be a headline event for the Ski Club with their annual race meet being held at Mammoth. Principal event will be the ladies' and men's downhill and slalom. Deadline for race registration is February 28, Friday, this week.

REGISTRATION OF VOTERS

A plant registration of voters service has been announced by Personnel Activities.

Deputy Registrars Margaret Chaput and Bernice Woods will be here March 2, 9, 23, 30, and April 6. Hours 11 a.m. to 1 p.m.

Registration deadline for the June primary is April 9.

Gen. Branch Honored



EDWARDS—Brig. General Irving L. Branch, Air Force Flight Test Center commander, gets silver bowl as top fund raiser in the recent \$16,000,000 Los Angeles County United Way Campaign for some 300 youth, health, hospital and social welfare services in 155 communities. The presentation, including a plaque (not shown) was made by Frank Oliver, jr., of nearby Rosamond, Antelope Valley area campaign board chairman. Under General Branch's leadership, the valley netted \$119,292—more than 16 per cent over its \$102,750 goal—to chalk up the highest area quota percentage of the 13 geographical areas involved. (Air Force photo).



THE T-38 and Lieutenant Dan Evans.

Les Daly Made Europe P-R Manager for International

Les Daly has been assigned as public relations manager in Europe for Northrop International, it has been announced by Norman Warren, Corporate director of Public Relations and Advertising. He will make his headquarters at the Paris office of Northrop Corporation.

Mr. Daly previously was public relations manager of Nor-

throp International at corporate headquarters here.

Northrop International, a division of Northrop Corporation, was established in 1957 to represent Northrop Corporation abroad. Its European headquarters are located at 12 rue Hamelin, Paris 16e, France.

A native of New York, Daly was a reporter for the Montreal Herald from 1952 to 1956 and for the Los Angeles Herald Express from 1956 to 1959. His wife, Eudice, and their two children will join him in Paris.

Mr. Daly is succeeded at Northrop International offices in Beverly Hills by Milan A. Chiba, who previously was public relations manager of Northrop Space Laboratories, Hawthorne, California. Prior to retirement as a lieutenant colonel from the U.S. Air Force in early 1963, Mr. Chiba served as deputy chief, Public Information Division, Office of the Secretary of the Air Force, Washington, D.C.

COMPANY PAYS QUARTERLY

The board of directors of Northrop Corporation last week declared a quarterly dividend of 25 cents per share, payable March 14 to stock of record February 28.

Record

(Continued from Page 1)

Gage, Mr. Hampton, J. J. Richardson, Anaheim; Leo Richman, W. D. Schramm, F. R. Smith, and H. R. Watson.

Officers:

Mr. Hampton, president; Mr. Carroll, vice-president; Mr. Gage, secretary-treasurer; Mary Delaney, assistant secretary-treasurer; Mary D. Josalle, assistant treasurer; Florence Montgomery, cashier; and Catherine Walker, chairman of membership committee.

Supervisory committee:

C. G. Collins, chairman; J. N. Barker, NSL; H. J. Grothmann, Palos Verdes; E. L. Johnson, and G. W. Thornton.

Credit committee:

J. L. Dew, chairman; L. W. Monger, and F. E. Wolfe.

A Community Service



LOANED EXECUTIVES—Northrop's Marvin "Red" Beyrodt (standing, left) of 22117 Kinard Avenue, Torrance, chalks up another year as loaned executive in Los Angeles County Heart Association's annual Heart Days in Business campaign, scheduled this year for February 10-14. Millard S. McGuffin, Heart Association board chairman, points out industry's need to fight cardiovascular disease toll costing more than 72 million man-days of production and \$4 billion in lost income each year. From left, standing, Mr. Beyrodt, Mr. McGuffin, Don Van Winkle, Prudential Insurance. Seated, Bert G. Kintner, Mobil Oil; Harry R. Alder, Southern California Gas.



RIDES WANTED

7 a.m. — 3:45 p.m.

WOODMAN & OXNARD, Van Nuys. E. Reeves, ext. 1332. 2

HOOVER & 7TH OR VERMONT & 7TH. Los Angeles. Madelyne Cristelli, ext. 2405. 1585. DU 4-4017. 2

KNOTT AVE. & GARDEN GROVE BLVD.. Garden Grove. Howard Roberts, ext. 1992. 897-3703. 2

7:30 a.m. — 4:15 p.m.

IMPERIAL HWY. & PRAIRIE AVE.. Inglewood. Bonnie H. Webb, ext. 1581 OR 7-0515. 3

VAN NESS & 104TH OR CENTURY & VAN NESS, Los Angeles. Gary W. Adams, ext. 691. PL 7-7911. 3

BOLSA CHICO & EDINGER, Huntington Beach. Robert G. Heiss, ext. 1951. 897-7166. 3

8 a.m. — 4:45 p.m.

CARSON & FIGUEROA, Torrance. Calvin H. Vance, ext. 2313. 835-1031. 5

VAN NESS & 182ND, Torrance. H. S. Adams, ext. 2382. DA 9-8406. 5

RIDES OFFERED

7 a.m. — 3:45 p.m.

KNOTT AVE. & GARDEN GROVE BLVD.. Garden Grove. Howard Roberts, ext. 1992. 897-3703. 12

MANCHESTER AVE. & LINCOLN BLVD. Los Angeles. J. M. Seamer, ext. 1942 OR 0-2564. 12

7:30 a.m. — 4:15 p.m.

BOLSA CHICO & EDINGER, Huntington Beach. Robert G. Heiss, ext. 1951. 897-7166. 13

8 a.m. — 4:45 p.m.

CARSON & FIGUEROA, Torrance. Calvin H. Vance, ext. 2313. 835-1031. 15

VAN NESS & 182ND, Torrance. H. S. Adams, ext. 2382. DA 9-8406. 15

POMONA OR COVINA VIA SAN BERNARDINO FWY. Duane Heise, ext. 2483. 354-2695. 15

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

VOLKSWAGEN, 1957 2-dr., \$425. FR 4-5028 after 5:30 p.m. A

HOUSES, 2 income property, on one lot, Inglewood area. \$19,000. AX 2-4958 A

OLDSMOBILE, 1956 4-dr., p/steering & brakes, auto., new paint, trans., tires & smog device, \$350 or best offer. OR 4-8541. A

RUG & PAD. 9'x12'. \$20; kitchen table & chairs. \$10. Box 101. A

BEDROOM SET, mahogany, \$75. FR 4-4786. A

DODGE, Polara. 1962. big eng., 15,000 miles, n/brakes & steering, bucket seats, \$2100 or best offer. 374-6460 after 6 p.m. A

REFRIGERATOR, Philco elec., 12 cu. ft., \$60. DA 9-2556. A

ACCORDION, Acmette, w/case, \$75. OS 5-0109. A

PONTIAC, 1955 station wagon, 2-dr., auto. trans., r/h. \$350. SP 3-2739. A

RELAXACIZOR, almost new, \$110. EX 5-5242. A

RECORD PLAYER, Decca stereo & radio blonde. \$100. PL 6-3025. A

ACCORDION, 120-bass Concerto, full-size, 11 key switches, 4 bass, w/case, straps, stand, some sheet music, \$325. DA 4-0449. A

CHEVROLET pickup, 6-cyl., truck Hydro-matic, custom cab, M-S tires, \$495. DA 6-7997. A

AD. RIDE FORMS

Going My Way and BBSF forms are available from Company stockrooms.

Going My Way is Form 59-228. BBSF is Form 59-308.

FOR SALE

Hi-Fi, Webcor, port., \$50; tape recorder, 2-sp., Voice of Music, P.A. outlets, \$90; transceiver, Gonset G-76 w/ac power supply, 100 kc Xtal calib., 80-6 meter. \$350; meters, 2, Gonset Comm. IV, \$225 RE 3-4738. A

DINING TABLE, mahogany, drop leaf, 6 matching chairs, \$110. AX 5-9997 eveninas. A

HONDA, 305 Dream, 1961, low mileage, 1964 taas. \$425. FR 9-3168. A

FENCE, 36" high chain-link, approx. 100' in length w/supporting poles, clamps & gate, \$30. 421-1817. A

T-BIRD, 1957, auto. trans., r/h, black, \$2000. DA 9-1287. A

HOUSE, 4-bdrm., 2 baths, 1301 sq. ft., 2 1/2 car garage, covered patio, corner lot, fenced, near San Diego Fwy., \$21,500. UN 3-0735. A

TYPEWRITER, Olivetti Studio 44, lae. size, portable, \$60. 377-5879. A

WASHING MACHINE, 20-cycle Kenmore, 2-yrs-old, \$75. 679-7577. A

TYPEWRITER, portable, w/carrying case, Sears Towle, \$45; table, wrought iron 1/4" glass top w/2 matching chairs, \$45. FR 7-6458. A

CADILLAC, 1952 4-dr., 1 owner, \$225. OS 9-4778. A

HOUSE, 3-bdrm., 1-bath den, fireplace, 1350 sq. ft., aarage 20'x22', 17-yrs-old, 91 month P&I, near Lona Beach Fwy. & Rosecrans, \$1500 dn., \$15,500. 714-897-3703. A

CHEST, antique hand-carved, brown, \$125. Box 102. A

ENGINE, Ford 406, complete w/carburetors, clutch, pipes, \$725. 439-0171. A

MOBILE HOME, 45' deluxe Pan American, 1955, 1-bdrm., living room, shower o/tub encl., aarage disposal, Dishmaster, twin sinks, Nu-tone hood, built-in oven, carpeting, sliding glass door, forced air gas heater, furn., \$4000. FR 2-4342 after 6 p.m. A

MERCURY Cruiser, 1960, r/h, air cond., power equipped, w/s/w tires, \$1400; Chevrolet, 1959 4-dr. sedan, extra trans., new tires, \$250; precision instruments, curves, Haff, Lotter parallel, \$150; base loa, Peckett dual, \$20; Crown Grafex, holders, tripod, etc., \$250; exposure meter, Dejur, \$20; camera, Retina IIC, 35-mm w/5.6/35 w/a & 4/80 telephoto lens, \$100; slide projector, TDC Selection, 35mm, \$30; movie camera, Revere 8mm, \$25; projector, Revere, 8mm, \$80; drafting table, Mayline, 30"x42", \$25. Box 103. A

HOUSE, 3-bdrm., 2-bath, lae. family room, close to shopping & hospital, unfurn., \$24,950; furn., \$26,950. 320-5552. A

HOUSE, 2-bdrm., Redondo Beach, hardwood floors, lot size 45'x100', 10% down, \$13,500. OS 9-3129 after 5 p.m. A

FORD station wagon, 1955, 8-cyl., new gen. & volt reg., \$125 or best offer. 326-7417 after 5:30 p.m. A

BICYCLE, boy's 26", J. C. Higgins coaster brake, \$18; hamster cage, circular w/exercise wheel \$1.50. FR 8-2810. A

TAPE RECORDER, small port. Apolec, \$16; adding machine, Remington-Rand manual, \$22; table, blonde w/drawer, \$19; blackboard, exec-size, \$6; camera Beacon, Brownie-size, \$4. 477-5957. A

HOUSE, 4-bdrm., 1 1/2-bath, family room, built-in kitchen, breakfast bar, carpeted, landscaped, block wall, covered patio, Huntington Beach, close to new Douglas plant, 35 min. to Norair, \$20,000. 714-847-5839. A

FREEZER, 18 cu. ft. Sub-Zero, upright; range dble. oven Philco elec., \$35 ea.; headboards, 3, twin, padded, \$5 ea.; blonde, dble., Hollywood, \$25. HA 9-4150. A

DINING ROOM SET, walnut, 3 leafs, 4 chairs, hutch, \$175. FR 1-6894 after 5 p.m. A

MOVIE CAMERA Bell & Howell, 8mm, optronic eye, reflex, slow motion & power zoom, zooms from 9mm wide angle to 27mm telephoto, F/1.8 Vamat lens, built-in filter, pistol grip, \$200. OS 6-3290. A

PLYMOUTH, 1952 station wagon, 1955 Chevrolet 265 cu. in. engine, Corvette Powerglide 1960 trans., elec. fuel pump, new wirina, r/h, panel interior, \$375 ST 8-9709. A

HOUSE, 1-bdrm., stucco in Lawndale, 7-yrs-old, carpet, fenced yard, \$8400 TE 3-2512. A

REVERBERATION UNIT, mono or stereo, \$30; washer-dryer, gas comb., Bendix, \$125; Ranchero, 1957, T-Bird eng., r/h, automatic, \$600 or offer. FR 8-3990. A

STUDEBAKER Commander, station wagon, 1955, auto., heater, good tires, \$195. DI 9-1088. A

WILLYS, 1941, new tires & brakes, body good condition, 29,000 orig. miles, \$150 PL 8-0374 between 10 a.m. & 2 p.m. A

SAILBOAT, sloop, Cal "24", rigged for racing, Dacron sails, sleeps 4, fully equipped, all stainless rigging & chrome fittings, \$6900. 346-9191. A

TOOLS, 1" micrometer, Lufkin, \$15; 12" rule w/2 angles, Starrett, \$6; 2 scribes, 50c; tape, 12' power return steel, \$1; sliding square, 4", \$1; protractor, \$3. OS 9-6982. A

GEM AND MINERAL SHOW SET, EXPECT CROWD OF OVER 4000

The Northrop NRC Gem and Mineral show will stage its fifth annual "Jewel-land Fantasy" on Saturday and Sunday, March 14 and 15, it has been announced by Gem and Mineral Commissioner Dan Kozlow.

Location is the Northrop Norair Product Display building on Broadway, a half way between Prairie and Crenshaw.

Show chairman this year will

be Frank Bowes of Nortronics ES&E and Gem commissioner for that division.

Highlights of the show which is expected to equal last year's extravaganza when 4000 people attended, include the following.

There will be four commercial lapidary vendors with indoor displays, plus two additional vendors with outdoor displays.

Hundreds of precious and

semi-precious gems and minerals on display by Club members and guests.

Many commercial collections on exhibit. A section of hand-made jewelry on display.

There will be working demonstrations of gem cutting, lapidary skills, and lapidary equipment.

There will be games with prizes for winners.

A snack bar serving sandwiches, soft drinks, milk and coffee is in order.

Admission is free and ample parking has been provided.

NRC ANNOUNCES SALT WATER FISHING DATES

The Northrop Recreation Club, Bernie Doyle, president, has announced charter dates for deep sea fishing for the coming season.

The boat will be the Maverick, skipper Russ Izor, a popular team and a repeat from last year.

The dates:

April 25.

May 23.

June 27.

July 25.

August 22.

September 26.

Price is \$12.50 a trip with a limit of 24 persons. Reservations required.

Bernie cautions that fishermen should bring their lunch and a Thermos of coffee.

Departure time for April, May and June is pegged at 1:45 a.m. During July, August and September departure times will be announced later. Reason—albacore.

NRC ARRANGES FOR HUNTER SAFETY COURSE

Northrop juniors are being afforded the golden opportunity of participating in a State approved hunter safety training course, it has been announced by Bob Bagby, Trap and Skeet commissioner.

All those familiar with the subject know that state law dictates all persons under 18 years of age must have completed this course before a license can be issued.

The class will be held on Friday nights, March 6, 13, 20, and 27. Time is 7 p.m. at the NRC Clubhouse.

There is no cost. Registration deadline is 12 noon, Friday, March 6, Personnel Activities. There is a class limit of 20 students.

Fred "Grif" Griffin, a 23-year Northrop man will be the instructor.

West Indies in Luxury Planned by Travel Club

The NRC Travel Club, Commissioner Dave Carney, reveals Gadabout plans for what bids to become the best package of 1964.

A Grace Lines voyage to the Caribbean for 15 days at \$818, all inclusive and all first class!

FOR SALE

VOLKSWAGEN trailer hitch, never used, \$15. 397-6439. A

RENAULT Dauphin, 1959 new paint, good tires, \$350. 377-3984. A

CLARINET, Conn. \$100. PL 5-6301 after 5 p.m. A

TAPE RECORDER, Wallensaak T-1500 extra tapes, \$75. AX 5-0039. A

TABLE LAMPS, traditional, silk shades \$22 or 676-5253. A

STUDEBAKER Starlight, 1952 coupe, 1964 license, \$60. FR 1-1308. A

CABINET, 15"x18"x22" steel, 1/2" 3/4" 1" pipe dies, all for \$5; hedge trimmer, elec., \$7.50; pipe wrench, 18", \$1. VE 9-6638. A

BICYCLE, Schwinn Deraillleur, \$45; Ford Ranchero, 1957, \$60; HO train layout, table, locomotive & cars, \$30; draught beer box, homemade, \$125; refrigerator beer tap, compl., \$89. 371-7878. A

RELAXOR, slim-trim, \$50; curtains match stick-type, 6'3"x3', 4'4"x4', 2'3"x6' long, some glass-lined, \$10; jack, trailer-type, \$10. EX 8-2406 after 4:30 p.m. A

CHEVROLET, Impala, 1961 2-dr. h/top, air conditioned, \$2100. 354-2695 days. A

PICKUP, GMC, 1962 3/4-ton, lae. bed, 6-ply tires, \$1850. 714-545-1706. A

WANTED TO BUY

CLIPPERS, professional-type, for dogs, in good condition & reasonable. 374-3365. B

FOR TRADE

MASSAGER, Moxley, trade for carpenter work, value \$150. 835-6183. C

LOTS, 2, Rose Hill Cemetery in Vista Lawn area, trade for 16' boat, trailer & motor. 423-5890. C

FORD, 1931 roadster, 303 cu. in. Oldsmobile eng., channeled 12" chopped windshield, LaSalle trans., 4.56 rear end chrome front end, trade for motorcycle. OS 9-3554. C

FREE (to be given away)

PUPS, 6-wks-old; mixed cocker, 1-yr-old, must find homes by March 1. 372-8098. D

RENTALS OFFERED

APTS, deluxe, 2 & 3-bdrm., unfurn., carpets, drapes, built-ins, pvt. patios, closed aarages, hobby shop, Torrance, from \$120 mo. FR 5-0867. E

HOUSE, unfurn., suitable for business, adults, \$90. PL 7-7911. E

DUPLEX, 1-bdrm., unfurn., adults, 1 child & pets ok, \$80-\$85 mo. 679-6391. E

APT, new, deluxe 2-bdrm, unfurn., 1 1/2-bath, h/wood floors, plenty of closet space, disposal, enclosed yard, children over 14 10 min. to Northrop. \$99.50; 1-bdrm., furn., \$97.50. PL 5-0630. E

ENGINEER wants to share apt., large 2-bdrm., furn., in Redondo Beach, pool, aarage, utilities & phone, \$80 mo. 370-3458. E

APT, 1-bdrm., unfurn., 2nd floor, near Norair, aarage. \$80 mo. 776-3252. E

APT, unfurn., 1-bdrm., disposal, range, refria., aarage avail., laundry facilities, near Normandie & Imperial, \$60 mo. DA 4-3400. E

APTS, deluxe 2-bdrm., furn. & unfurn., lae. pool & patio, all extras, closed aarages, near El Camino Col., from \$115 mo. DA 9-5986, DA 3-1946. E

NORTHROP TRAVEL CLUB

Tours of Your Choice

Mail or Bring to Personnel Activities

LAST NAME	FIRST NAME	MIDDLE INITIAL
HOME ADDRESS		
CITY	HOME TELEPHONE	
TRIP OR TOUR INTERESTED IN . . . FIRST CHOICE		NO. PERSONS
SECOND CHOICE		
ORGN. NO.	SHIFT	EXT.
EMPLOYEE NO.	DIVISION	

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

• Wednesday, March 11, 1964

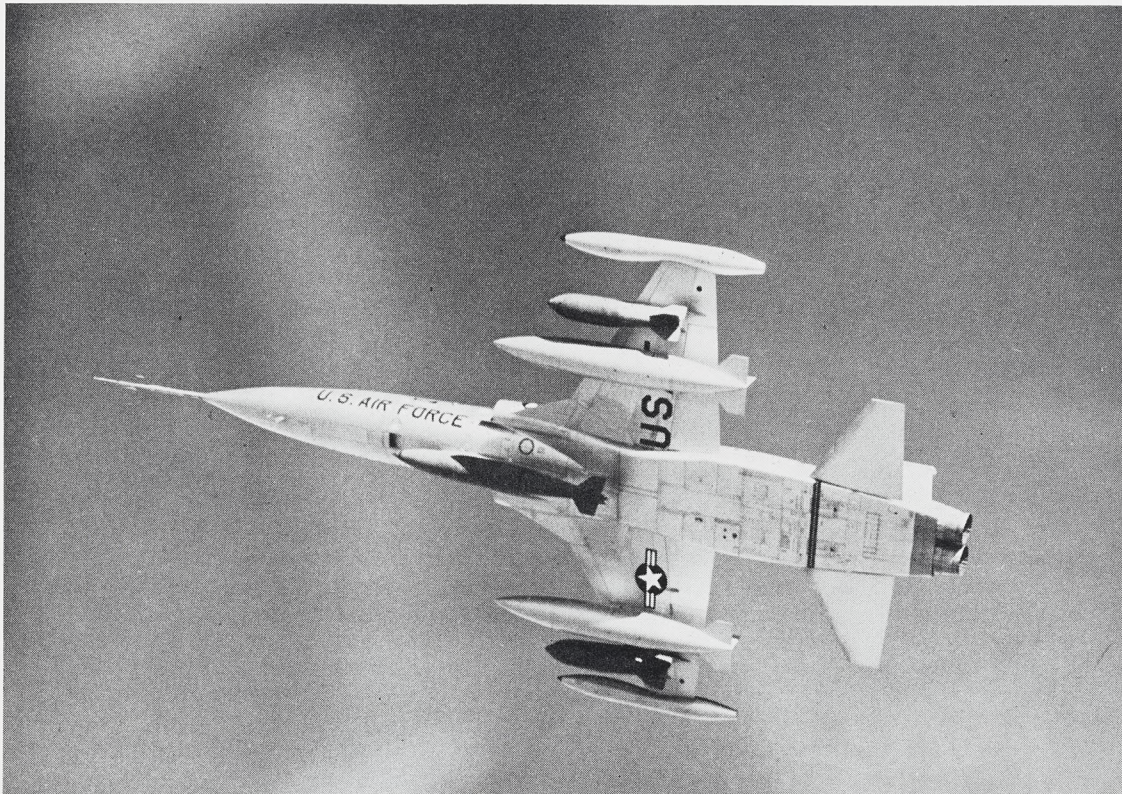
HAWTHORNE

PALMDALE

EDWARDS AFB

SAN ANTONIO

Land of the Midnight Sun



TAILOR-MADE FOR NORWAY—Norwegian Defense Ministry in asking Parliament to approve purchase of three squadrons of F-5s, said airplane was "tailor-made" for service in that country. Norway Ministry has asked for both F-5A and F-5B aircraft, to be produced at Northrop Norair in Hawthorne and Palmdale for delivery in 1966-67. F-5 in photo is shown in flight at Edwards. It carries 50-gallon fuel tanks on its wing-tips, 750-pound bombs on its outboard wing pylons, 150-gallon fuel tanks on the in-board wing pylons, and a 2000-pound bomb on the centerline. In addition to a 6200-pound external load in fuel and weapons, the F-5A carries two 20-millimeter nose cannon. Its combinations of weapons include Sidewinder air-to-air missiles for intercept missions.

Small Business Administration



IN SUPPORT OF COST IMPROVEMENT—In recognition of Northrop's participation as a leading defense systems producer in the government's program in support of small businesses, officials of the Small Business Administration and of the U.S. Air Force visited Northrop Corporate headquarters to exchange information with company officers and executives. Northrop is one of 26 U.S. defense manufacturers participating in a voluntary program to develop small business sources for components and sub-systems in consonance with the government's cost effectiveness program. During the past year, Northrop has increased its awards to small businesses by more than \$10,000,000. More than 75 per cent of the company's thousands of suppliers are small businessmen. Seated, L-R, Max Pellerin, chief, Contract Administration, Air Force Plant representative; George J. Byrnes, chief, Small Business Division, Los Angeles Contract Management District, USAF; G. H. Gilbertson, deputy director, Office of Procurement Services, Small Business Administration, Washington, D.C.; A. P. Meyers, director, Region 14, Small Business Administration; Robert R. Miller, senior vice-president, Northrop Corporation. Standing, L-R, L. V. Albright, Small Business liaison, Northrop Ventura; R. A. Amundson, subcontracting, Los Angeles Region, Small Business Administration; E. A. Lusk, chief, Procurement Assistance Division, Los Angeles Region, Small Business Administration; Max M. Bennett, business analyst, Los Angeles Contract Management District, USAF; C. W. Dunlap, Small Business liaison officer, Northrop Space Laboratories; J. W. Hinchliffe, Corporate director, Materiel, Northrop Corporation; Tom McGaughey, Small Business liaison officer, Systems Support department, Nortronics; E. M. Rossomme, Small Business liaison officer, Northrop Norair; Al Kiefer, Small Business liaison officer, Electronic Systems and Equipment department, Nortronics; C. W. Benson, director, Materiel, Electronic Systems and Equipment department, Nortronics; and L. F. Kissel, Small Business specialist, Norair.

NORWAY TO BUY THE F-5

TO NORWEGIAN PARLIAMENT FOR FINAL APPROVAL

The Norwegian Ministry of Defense has selected the Northrop F-5 tactical fighter to re-equip the Royal Norwegian Air Force.

The decision of the Ministry of Defense to acquire 64 F-5 fighters has been submitted with approval of King Olav V and government officials to the Parliament. Newsmen representing U.S. publications in Oslo, the Norwegian capital city, have reported approval by the Parliament is regarded as assured.

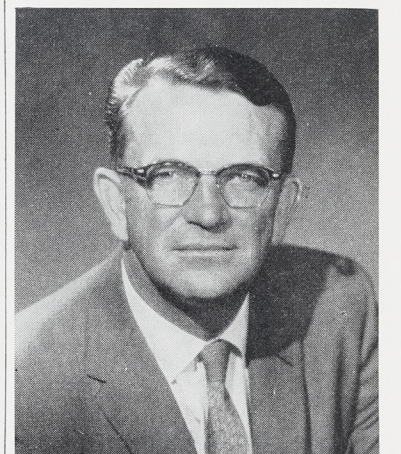
Immediately following the announcement of the selection of the F-5, Thomas V. Jones, Northrop president and chairman, flew to Oslo to meet with high Norwegian government officials and defense officers. At headquarters of the Royal Norwegian Air Force he met with Major General Wilhelm Mohr, acting commander-in-chief, to discuss the role of F-5s in Norwegian defense and how these new, supersonic airplanes will be used to strengthen the defense posture of that country. President Jones returned to Corporate headquarters this week.

Norway will acquire both F-5A single cockpit and F-5B dual cockpit fighters.

"We can all be proud that the F-5 was selected by the

Norwegian Ministry of Defense after exhaustive evaluation of many competitive aircraft," Corporate Vice-president and Norair General Manager Dick Nolan declared in informing Norair personnel of the Norwegian decision.

Norair personnel and Northrop International Division representatives under direction of Corpo-



DICK NOLAN

rate Vice-president and International Division Manager Pat Timberlake worked as a team in informing Norwegian defense officials about the F-5.

An important element in the selection of the F-5 was a series of evaluation flights of several
(Continued on Page 2)



AT RNoAF HEADQUARTERS—Thomas V. Jones, president and chairman of Northrop Corporation, returned this week from Norway where he met in Oslo with high-ranking Norwegian officials following the announcement that Norway plans to acquire 64 Northrop F-5 fighters. At Royal Norwegian Air Force headquarters he was greeted by Major General Wilhelm Mohr, left, acting commander-in-chief. See story above for complete details.

Lend Your Leisure

A few years ago, Hal Chanslor, our popular associate then with the Personnel Activities branch, wrote a song entitled, "Lend Your Leisure Hours to Your NRC." (I think I have the only copy available in sheet music form; drop by and see it.) This, for a time, became our Club's theme song.

With or without the song, today we find a large segment of our personnel enjoying the mul-

Day shift commissioner is Dan Kozlow, Off-Site Castings, Forgings & Machine Parts group and night shift commissioner is Lyle Claypool, Plumbing & Mechanical Subassembly group. I recall the very fine exhibit which this Club sponsored last year when over 4000 people passed by the beautiful displays created by the members of this Club. This particular organization, along with many others sponsored by NRC, have become part of national clubs.

By John B. Clark
Norair Director, Industrial Relations

multiple opportunities afforded Northrop people to engage in their favorite sport or recreational activity (cultural, too), all sponsored by the Northrop Recreation Club.

This is your Club designed with you in mind.

Recently, I discussed our present day program with Dick Pryor, general supervisor of Personnel Activities. His branch cooperates with the elected representatives and commissioners of the various group clubs, and therefore is the man in-the-know on NRC matters.



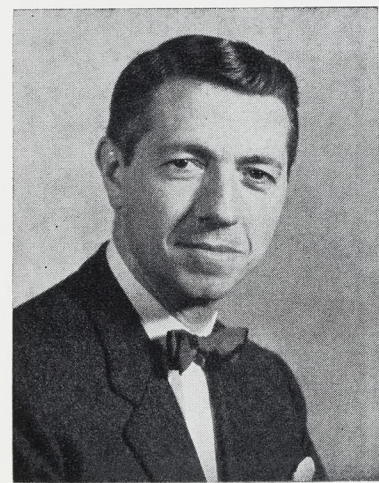
Dick advised that the Club is flourishing with a total of 36 activities, just about everything from "A" (Art Club) to "Z" (anyone for zither playing?). Traditionally, the greatest employee participation is in the bowling and golf groups. At present over 1000 men and women of Norair are active participants in these two popular pastimes.

In our conversation Dick proudly boasted of the NRC Fishing Club which makes it possible for the followers of Izaak Walton to frequently go on deep sea and surf fishing expeditions.

★ ★ ★

John Pawlicki of Organization 7000, Quality Control department, is the avid commissioner of this group and often tells of its 100 or more NRC members and their families enjoying a fishing trip both on the briny deep and at surf side. This has become, according to John, truly a family affair with grandma and grandpa, as well as the young toddlers going along.

Another activity that has found favor with so many of our people is the Gem and Mineral Club.



SAL XIFO



KEN YOST

AIR FORCE ITEMIZES MAJOR R & D INTERESTS FOR 1964

WASHINGTON (AFNS) — The Air Force plans to spend \$3.26 billion during the next year for research and development of new weapon systems and aerospace projects to meet the needs of national security.

The funds will go toward improving existing capabilities and developing new ideas and concepts. Individual projects range all the way from engines, missiles and airframes to studies of air subjected to high temperature arc jets.

Major fields of interest include:

- ICBM's which will comprise a superior mixed force with
- Manned strategic aircraft.
- Aircraft and missile tactical systems which will provide the nation with flexible, all-weather capabilities in any part of the world.
- Long-range defense systems—

both missiles and aircraft—which will operate effectively against a wide range of attacks.

- Warning, reconnaissance and intelligence systems which can cope with a variety of threats.
- Airlift systems which will permit the Air Force to support increasing requirements for troop carrying and cargo capabilities.
- Effective worldwide communications systems which are integrated with other national systems.
- Advanced space systems — both manned and unmanned — which will enable the United States to learn more about what man can do in space and which will eventually permit the nation to deal with threats arising in space.
- Command and control systems which will insure that the nation can use its military forces effectively under all kinds of conditions.

The list of major projects included in the proposed 1965 Air Force budget was presented to the Senate Armed Services Committee on February 17 by Lt. General James Ferguson, deputy chief of staff for Research and Development.

In addition to the special areas mentioned, General Ferguson pointed out "another major task is maintaining technological superiority in areas not specifically related to any particular system."

Some \$1.17 billion is scheduled for operational systems development—those weapon systems which have already been approved for the Air Force inventory. An additional \$2.08 billion will be used for projects not directly connected to approved systems.

T-38/F-5 Configuration Management

Establishment of a T-38/F-5 Program Configuration Management and Administration section, has been announced by Division Vice-president and Assistant General Manager-Technical Welko Gasich.

Sal Xifo, formerly director, F-5 Program, was appointed director of the new activity.

Another key appointment in the program was that of Ken Yost to the position of chief of Configuration Management group for the T-38 and F-5.

Configuration Management which was developed originally by the Air Force as an administrative system for use in large missile weapon systems, copes with the complexity resulting from the concurrency concept and from participation of many associate contractors on equal or near equal basis. Its use in industry is now being broadened to aeronautical weapon systems. The T-38/F-5 program application is one of the first developments in this new category.

The basic purpose of Configuration Management is to provide formal procedures for which a uniform system of configuration identification, control, and accounting is established and maintained for all deliverable elements of a weapon system.

LAYMEN'S LANGUAGE

In laymen's language, configuration as applied to an airplane means the basic character of the ship and its assigned missions.

Elements of the system as applied to the T-38/F-5 include the airplane itself, plus AGE (aerospace ground equipment), MTU (mobile training units), handbooks, and GFAE (government furnished equipment).

It will be readily seen that a change or alteration in any one of the elements that go to make up the system would have a direct, and perhaps a profound influence on the job the airplane is being called upon to do.

Configuration management assures complete system integrity.

Special Air Force management teams in recent surveys of Norair have commended the Division for having good configuration control policies and procedures. Implementation of T-38/F-5 Configuration Management directorate

will emphasize utilization of existing Company methods and with a maximum of coordination and phase-in planning.

Mr. Xifo, director, Program Configuration Management and Administration, is a 14-year Norair man. Upon joining the Company, he successively served as supervisor, general supervisor, and chief of Missile Flight Test for the years 1952 to 1959. He was made project engineer on the Norair N-156—January to September 1960 and was then engineering representative for the Division in Europe from 1960 to 1962.

He was educated at New York University majoring in structures and aerodynamics. He achieved a

bachelor's in aeronautical engineering in 1941.

AN 18-YEAR MAN

Mr. Yost, chief of Configuration Management is an 18-year man and a native of California.

After graduating from the University of California in 1942 with a B.S. in mechanical engineering, he spent four years in the Air Force and the U.S. Army Corps of Engineers. At Northrop since 1946 he has been working continuously with configuration management and in allied positions for the past several years. He was chief of Program Control on the Titan installation program for Norair Field Support at Ellsworth AFB.

Norwegian Ministry

(Continued from Page 1)
types of aircraft conducted by six Norwegian air force officers at Edwards Air Force Base a few months ago. Flights of the Northrop planes were programmed by Northrop Norair flight test personnel based at Hawthorne and at Edwards.

Mr. Nolan pointed out that Norway is only one of several potential overseas markets for the F-5. He emphasized to personnel that Division performance on all F-5 and T-38 contracts was of the utmost importance and would directly bear on additional overseas contracts.

"Future sales depend on how well we do our jobs each day," he said.

The Norwegian Defense Ministry said in its statement on the proposal that the F-5A has qualities that are tailor-made for service as required in Norway.

The initial procurement of three squadrons of F-5 aircraft is planned for delivery during the 1966-67 time period, according to the understanding between the governments of Norway and the United States, the Ministry statement said.

As a producer of high performance combat airplanes, Northrop has had a long association with the Norwegian government. The first production aircraft ever built by Northrop—N3PB Patrol Bombers—were ordered by the

Norwegian government more than 25 years ago, shortly after the Company was founded. The N3PB's were used by the Norwegian government in exile in World War II to patrol the Middle Atlantic. One of these bombers played an important role in the tracking down and sinking of the famous German battleship, the Bismarck.

Northrop also is represented in Norway through a business agreement with Raufoss Ammunisjonsfabrikker, a leading developer and producer of military and commercial products in Norway. Under the technical assistance and licensing agreement, Raufoss will manufacture and market aluminum doors, windows, building entrances and store fronts developed in the United States by a Northrop subsidiary, Northrop Architectural Systems.

NORTHROP NORAIR NEWS

VOL. 22 NO. 2

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A NORTHROP CORPORATION PUBLICATION

NORAIR DIVISION
Published every other Wednesday

CHARLES BRADFORD, Editor

Permission to publish material with credit to Northrop Norair News will be granted. News office extension—2456. Outside lines—678-9111, OS 5-4611.

LFC Nears Milestone—100th Flight Due Soon

Government letter contract has now been received from the Air Force Systems Command covering Northrop's X-21 program through fiscal 1964. It has been announced by Don Warner, manager, Laminar Flow Control Air-

plane Demonstration department.

Also, and by way of a salute, the two LFC airplanes are rapidly approaching another major milestone — the 100th research flight, due to be logged sometime this month.

And Norair's traditional safe flying figures in. No accidents mar the program.

Last week flights 89 and 90 were chalked up at Edwards where Norair pilots and engineers regularly go aloft to perfect the new breakthrough technology of laminar flow control.

Airplane "408A" has made 69 flights, Mr. Warner said. Airplane "410A" which is now in the hangar undergoing leading edge optimization has made 21 flights.

The flights are being carried out at a wide range of speeds and altitudes.



DON WARNER

T-38 Academy Briefing



GENERAL STRONG—Welko Gasich, vice-president and assistant general manager-Technical, Norair Division, second left with Frank Lenherr, J-85 engine program manager, General Electric, at left, describe performance of the Northrop built, J-85 equipped T-38 Talon, to Air Force Academy Commandant of Cadets Brig. General Robert W. Strong, Jr., and Colonel Gage H. Crocker, head of the Department of Aeronautics. Mr. Gasich and Mr. Lenherr briefed Academy personnel on performance of the T-38, first supersonic trainer. (Air Force photo.)

Management Club Elects New Officers—Sacks, President

Northrop Norair Management Club members have elected Leo Sacks, a 22-year man, president for the coming year, it has been announced by Ed Laski, president for the current term, 1963-64.

Mr. Sacks is general foreman in Manufacturing's 5757, T-38/-F-5 Fuselage Mate and Complete.

Other officers elected to serve through 1964-65:

Vice-president — George Bajajian, general foreman, Chem-Mill and Hydraulics.

Secretary — Mary Delaney, assistant treasurer, Credit Union.

Treasurer — Rollie Pontious, supervisor, Laboratory Operations.

Sergeant-at-arms — Joe Blaire, supervisor, Inspection Planning.

Night Vice-president — Jim Breneman, assistant general foreman, Chem-Mill and Hydraulics.

Officer installations will take place at the next regular dinner

meeting, scheduled for Friday evening, April 3.

New committee heads and other members of the upcoming board of control will be announced as soon as the appointments are made.

SADIE HAWKINS NIGHT PLANNED

The Northrop Recreation Club will stage Sadie Hawkins night at the Clubhouse, Saturday, April 4, it has been announced.

There will be a "Dogpatch" versus Skonk Hollow fashion contest, plus dancing and fun galore.

Free cracklin's, chittlin's, turnip greens, grits, and corn pone. The Pendletons combo will furnish the music.

Only 300 tickets are available to Norair, Nortronics ES&E and NSL personnel.

Check in at Personnel Activities.



PROUD TEAM—Paid high compliment by Colonel Clark for contributing outstandingly to the on-schedule success of the Division is this smiling group from Spares Disbursement, Records and Control. From left, Paul Hughes, supervisor; Floyd Bower, Del Clawson, Alan Robinson, Chuck Martin, Margaret Martin, Don Schuetze, Pat Gosling, Alta Dolby, Frances Buracchio, Conrad Pearson, Barbara Holmes, John MacDonald, chief, Spares, AGE, and GFP; June Lemons, and Bill Rieger. Norair Division has, with minor interruptions, maintained completely on-schedule deliveries of Air Force contracts for the past four years.

Colonel Clark Praises Norair Division For December Contract Delivery Record

Colonel Charles W. Clark, Air Force Plant representative, has complimented the Division for successfully meeting all contractual delivery dates during the month of December.

"A very commendable achievement in view of the number of contracts with deliverable items and the short December work month," stated Colonel Clark.

In his letter of praise addressed

to F. W. "Bob" Lloyd, vice-president and assistant general manager-Operations, Colonel Clark particularly acknowledged the work of Spares Disbursement, Records and Control unit, Paul Hughes, supervisor, which is a part of Spares, AGE, and GFP, John MacDonald, chief. This group in turn comes under the jurisdiction of Manufacturing Control, D. G. McNeal, director.

The letter follows.

Mr. F. W. Lloyd
Northrop Norair

My Production Division has just informed me that Norair met all contractual delivery dates during the month of December 1963.

This is a very commendable achievement in view of the number of contracts with deliverable items and the short December work month.

I know that many persons contributed to this success, but the work of Mr. John MacDonald and Mr. Paul Hughes and their organizations has been particularly brought to my attention.

I hope that Norair can continue this excellent work. Congratulations!

Charles W. Clark
Lt. Colonel, USAF
AF Plant Representative

T-38 Fatigue Tests Mark 21,000 Hours in Flight

T-38 Fatigue Certification program, see Northrop Norair News feature, February 27, 1963, has reached a major test plateau, it has been announced by R. B. Jackman, chief, Engineering Laboratories.

Mr. Jackman reveals that the T-38 has passed 21,000 simulated service hours and 45,000 simulated landings which make it one of the most tested aeronautical systems in the Air Force inventory today.

Technical aspects of the Fatigue Certification program for both the T-38 and the F-5 are under the direction of Structures and Mechanical Systems, L. J. Yancey, chief.

The test specimen located in the NSL building is now scheduled to undergo extensive and detailed inspection starting next week. Meanwhile, cycling of speed brakes, flaps and ailerons continues without interruption.

Fatigue testing of the wing and landing gear will be resumed the latter part of this month.

"Our ultimate goal," stated Mr. Jackman, "is 9000 more simulated service hours for a total of 30,000 and an additional 30,000 simulated landings for a total of 75,000."

The T-38 fatigue test program was launched 33 months ago in the high bay area of what was then known as the Engineering Test building. The test set up, due to the precision nature of the equipment and extensive documentation necessary to put the airplane through a valid lifetime of simulated service, was not disturbed when the area and fa-

cilities were assigned to Northrop Space Laboratories use.

The Fatigue Certification on the F-5 which seeks to achieve similar endurance marks is now being set up at its own permanent location, in the high bay area of Plant Three. A preview look at this program was also given a full-page feature in the Northrop Norair News, July 17, 1963.

MANGURIAN TO SERVE SECOND TERM IN AIAA

George N. Mangurian, manager, Applications Engineering and Planning, NSL, has been appointed to his second year on the American Institute of Aeronau-



GEORGE N. MANGURIAN

tics and Astronautics technical committee on structures.

Mr. Mangurian was advised of his re-appointment by Courtland D. Perkins, AIAA president-elect.

Institute committees were praised by President Perkins for progress during the first year of

AT THE CAFETERIA
Special St. Patrick's Day Dinner
March 17, 1964
Choice of soup or green salad
Choice of entree
Corned beef and cabbage
Irish stew cassolette
Breaded haddock square
Boiled potatoes, vegetable, roll and butter, beverage
Choice of any dessert
\$1.25—tax included

operation as AIAA. Expanded technical activities bid to achieve an even higher level of results for the coming year.



RIDES WANTED

7 a.m. — 3:45 p.m.

7TH & VERMONT OR 7TH & HOOVER.
Los Angeles, Madelyne Cristelli, ext.
2405, DU 4-4017.

8 a.m. — 4:45 p.m.

SANTE FE & COMPTON BLVD., Compton.
Cecelia Hart, ext. 2856, OS 9-4800.

LA BREA & 62ND, Los Angeles, Anne
Lawrence, AX 4-4325.

MASON & HART, Canoga Park, R. F.
Kissling, ext. 1465, 1476, 347-0888.

RIDES OFFERED

8 a.m. — 4:45 p.m.

LA BREA & 62ND, Los Angeles, Anne
Lawrence, AX 4-4325.

MASON & HART, Canoga Park, R. F.
Kissling, ext. 1465, 1476, 347-0888.

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

CEMETERY LOTS, 4, Glen Haven Memorial, San Fernando area, Sunnyslope section, fully developed, \$200 ea. DA 4-5774 evenings.

REDUCING TABLE, Broadway deluxe model, 2 moving sections plus vibrator, \$75. 375-9657.

PORSCHE, 1955, 1500 super coupe, 9000 miles since complete overhaul of eng. & trans., new crankshaft, rod & main bearings, brakes, steering box, starter, \$1295; steel quilted 6-strata case, instruction books, \$30. GL 7-2949.

LAWNMOWER, Pennsylvania, 18" w/ grass catcher, \$10. OR 7-1372.

REFRIGERATOR, Coldspot, \$25. OS 5-6285 after 4 p.m.

RING, men's diamond, 4.5, \$125. PL 0-3157.

BICYCLE, 26", girl's, hand brakes, 3-spd., good tires, \$20; sofa, brown, 6 ft. long, \$20; dining table, 6 chairs, Formica table top, \$15. 376-9704.

TRAILER, 1-wheel, wooden box, \$30. 897-7166.

FORD, 1956 4-dr. town sedan, rebuilt engine 1-yr-old, automatic trans., good tires, \$250. 675-7231 after 5 p.m.

OLDSMOBILE, 1958 Starfire 98, convert., full power, new brakes & tires, \$1000; Oldsmobile 88, 1955 2-dr. sedan, \$150. 339-8008.

SNOW TIRES, 2, for Volkswagen, \$25. OS 9-4778.

BOOKS, Alexander Hamilton business course, 24 vols., reading guides & lectures, \$75. 675-9210.

GUNS, 3, old, for collector, Turkish, Danish, Russian, \$45. 675-8598.

BOAT, 15' Fisherman, small open cabin, Johnson, 30-hp, equipped, trailer, \$370. 371-9730.

CHEVROLET, 1955 convert., low mileage, new top, paint & brakes, \$325 or best offer. 296-1238.

LAMP, McCall Desert Aire, \$25; massager, Stauffer, \$60. AX 4-4325.

MOTORCYCLE, 1961 Honda Dream, 305cc, \$250. EA 2-1966 after 4 p.m.

CORVAIR, 1963 Monza coupe, 4-spd., \$1800. 674-3671.

CHEVROLET SS, 1962, 300-hp, 4-spd., \$2250. 645-2927 after 5 p.m.

DESK, 60", exec. w/chair, \$20; reducer, Stauffer w/timer, \$75. PL 7-7894.

STEP TABLES, 2, \$10 ea., cocktail table, bleached walnut Formica, \$15. 645-4697.

STOVE, O'Keefe & Merritt, 39" chrome top glass in oven door, \$50. OS 6-4272.

PIANO, Story & Clark spinet, mahogany, \$500. FR 5-7990.

AD, RIDE FORMS

Going My Way and BBSF forms are available from Company stockrooms.

Going My Way is Form 59-228. BBSF is Form 59-308.

FOR SALE

COFFEE TABLE, set, end tables, 2; desk, modern, \$60; lamps, 2, \$25; speaker enclosures, 2, J. B. Lansing C46 miniaon w/55 speaker systems, \$295. OS 9-7189.

TV, RCA Victor, 21" mahogany cabinet, \$45. NE 2-4375.

CHEVROLET, 1953 2-dr., rebuilt eng., \$300; motorcycle, 1959 Matchless, 650 cc. \$600. OR 1-1660.

RUG 9'x12', \$20; washing machine, junior w/wringer, \$18; bicycle, boy's 26" Roadmaster, \$18; machinist toolbox & tools, \$45; tires, 2, 7.10x15 tube-type w/tubes, \$6 ea. DA 4-8853.

RECORD CHANGER, Gerhard, \$15; cart-ridges, GE VR II maq. w/T/O diamond needles & shell in-puts, \$6; base, custom-made, black lacq., \$5; or all for \$32. OR 3-1539.

GO-KART, bua frame, McCulloch 8 eng., racina cart, \$300; DeSoto, 1957, \$275. OS 5-6032.

REFRIGERATOR-FREEZER, Hotpoint, self-defrosting, 85-lb. cap. freezer, \$100. 754-8957.

REFRIGERATOR, Philco, 9 cu. ft., \$30. 838-4378.

BICYCLE, girl's 26", all chrome, \$25. OS 5-8335 after 6 p.m.

FORD, 1957 4-dr. Fairlane 500, V-8 Fordomatic, rebuilt eng. & trans., \$350. DA 9-0127.

DRILL SET, 2, in cases 1/16 to 1/2 x 1/64, \$20; #1 to #60, \$20. 645-3381.

FORD, 1953 club coupe, Fordomatic, 1-owner low mileage, \$195 or make offer. PL 9-8920.

CORVAIR 500, 1963, stick shift, olive green, 7000 miles, \$1950. FR 5-8204, between 5:30-7:30 p.m.

FIREWOOD, mixed, \$5 for 50 cu. ft. OR 1-6485.

RECORD PLAYER, Bradford, The Marion, \$15 or best offer. 376-3849.

MILL, Pratt & Whitney, horizontal production, \$200. 677-6348.

ENGLISH FORD, 1953 Zephyr, \$90. OS 6-1018.

DODGE, Coronet, 1959 4-dr. h/top, new tires, \$950 approx. bal., \$375 plus \$50 mo. payments. 374-0015.

BUILDING MATERIAL, 450 ft. of 2 1/2" width base shoe molding, \$18; corrugated Fiberlase, 13 sheets, 26"x96", assorted colors, \$52; bedroom set, walnut, \$50. FR 1-2948.

APTS, 3 units, 2-bdrm., new, built-ins, drapes, walking distance to Northrop, 90% financed, \$3500 down & assume existing loan, \$34.875. FR 2-6628.

CAMPER, Silvertown, 1960, 10' o/head, butane stove, ice box, self-contained, \$1050. DA 4-1719.

BICYCLES, boy's 26" w/book carrier on rear, \$15; boy's 24" \$12; girl's 24" w/basket, \$12. FR 1-6328.

FIAT, 1961, 1200 roadster, new tires & tune up, \$1250. 883-7038.

MOTOR SCOOTER, 1962 Allstate, cost \$400. \$110. TW 3-8798.

FREEZER, upright, Marquette, 20 cu. ft., \$190. 371-5391.

MERCURY, station wagon, 1954, 9-pass., V-8 eng., new trans., r/h, recently o/hauled, \$300 or best offer; bicycle, Schwinn Continental Derailler, 10-spd., \$75 or best offer. 772-3948.

REFRIGERATOR-FREEZER, Kelvinator side-by-side, \$325; washer & dryer, Kenmore auto., covered by Sears service contract, \$75. OR 2-5878.

HOUSE, near Rolling Hills Eastfield Gate, 3-bdrm. & conv. den, 2-bath, split-level, panoramic view, \$49,500. TE 3-9862.

CHEVROLET 1957 2-dr. Bel Air h/top, V-8, Powerglide, p/brakes, r/h, new paint & exhaust system, \$600. 370-3458.

SAILBOAT, 24' Creegar sloop, Dacron sails, full canvas covers, new paint, 5-hp British Sea Gull, at Kina Harbor, \$2500. OS 6-3774 after 5 p.m.

FORD, 1946 Woody, new top & inter., floor shift, \$390 or offer; Corvette, 1963 red conv., 4-spd., \$3295 or offer; Pontiac, 1956 4-dr. h/top, full power, 29,000 ori. miles, \$395; Mercury, 1956 h/top, full power, 36,000 miles, \$325. FR 5-6716.

FURNITURE, chairs, 2, redwood, adjustable back w/cushion, \$8 ea.; sofa, Naugahyde, \$45; end table, \$28; coffee table, 72", \$44; cigarette table, \$12, all cherry walnut finish; lamp, \$16; sofa, 14', brown, \$95; range, gas Tappan w/ariddle, \$45; aquarium, 10-aal. tank, pump, heater, filter, etc., \$35; generator, Van De Graff electrostatic, 400,000-volt, 12" dia., 32" high, \$115. PL 4-9637.

OLDSMOBILE, 1953 4-dr., \$175. 679-2325. 675-7131.

ORGAN, Hammond extravoice, \$525. NE 5-3250.

CHILD CARE OFFERED

BABYSITTING, occasionally, for day & night time care, reliable woman near Northrop, reasonable. 675-2003.

RENTALS WANTED

HOUSE, 3-bdrm., 1 1/2 baths, dble. garage, ample closets & storage space, needed March 15. 375-9690.

GARAGE, 677-6008 after 5 p.m.

SCOUT TROOPS TOUR EDWARDS

Norair's special purpose Boy Scouts of America explorer posts were taken on tour of giant Edwards Air Force Base last week.

The party numbering 30 boys including two Norair post advisors, Ed Nolan and Len Kissel, made the round trip from Hawthorne to the desert test flight base by a Northrop-chartered special highway cruiser bus.

Norair Industrial Management

LAST REMINDER FOR G&M SHOW

This is the last reminder to all Northrop personnel to attend the fifth annual Gem and Mineral show.

Theme this year will be a jewel-land fantasy.

The show will be presented March 14 and 15 at the Norair Product Display building on Broadway between Prairie and Crenshaw in Hawthorne.

Admission is free and Dan Kozlow, Norair commissioner, extends a cordial invitation to one and all.

On March 14, Saturday, doors will be open from 10 a.m. to 10 p.m. On Sunday, from 10 a.m. to 6 p.m.

WANTED TO BUY

LAWN SWING, in good condition & long loop cotton shag rug, 4'x5' or larger. OS 9-6982.

FREE (to be given away)

DOG, 1-yr-old, Belgian shepherd, needs a good home & yard. OS 5-9695.

RENTALS OFFERED

APT, 1-bdrm., custom decorated, subterranean parking, pvt. decks & pool, \$127. 373-1143.

APT, new deluxe, 1 1/2 baths, built-ins, fireplace, carpets & drapes, lae, patio & pvt. garage, near Northrop, children ok, \$155. OS 5-7938.

HOUSE, 2-bdrm., disposal, children, ok, Lawndale, \$95 mo. 371-0404.

APTS, new deluxe 2-bdrm., unfurn., carpets, drapes, pvt. patios, closed garages, hobby shop, near San Diego Fwy., Torrance, \$125 mo. FR 5-0867, DA 0-4058.

APT, unfurn., 1-bdrm., disposal, laundry facilities, garage avail., near Harbor Fwy. & Imperial, \$60 mo. DA 4-3400.

APT, 3-bdrm., 2-bath, deluxe, 4 short blocks from Norair, disposal, carport, \$125 unfurn.; \$140 furn. TE 3-2512.

APTS, deluxe 2-bdrm., furn & unfurn., lae, pool & patio all extras, closed garages, near El Camino Col., from \$115 mo. DA 9-5986, DA 3-1946.

PERSONAL

WE WISH to express our appreciation to all our friends at Northrop for all the kindness shown during the illness & passing of our beloved husband & father, FLOY SCHEER & BOYS, FRANK, EDDIE & MICKEY.

OPPORTUNITY to obtain private pilot license at low cost as part owner of late model aircraft. FR 7-3810.

DESIRE 1 or 2 additional San Diego resident employees for daily commuting by light aircraft from San Diego to Hawthorne. GL 9-1067.

BUY BONDS

A & E Flying Club has openings for new members. 324-2992 evenings.

WOULD like 1 or 2 persons to share driving & expenses to Chicago area, leaving around June 26. 676-6930.

FOR SALE OR TRADE

TIRES, 3, size 7.60x15, \$5 ea. or trade for size 7.60x14. AX 2-4958.

AIR COMPRESSOR, 3/4-hp, w/spray gun, hose & tank on wheels, \$60 or trade for bandsaw. FR 8-3990.

SHIP MODEL, 24" working model of Henry Hudson's Half-Moon, \$75; wrist watch, 21-jewel, man's Bulova, \$25; binoculars, Hensoldt, 6x42 w/case, \$35 or trade for desk, typewriter, books, stereo components, skisaw. OS 6-5253.

CHEST-ON-CHEST, 5-dwr., eastern hardwood maple, \$40 or trade for 2 low chests in walnut or maple. SP 2-1902 after 5 p.m.

Post 172, a manufacturing oriented group, was host for the trip. The science types, Norair Aerospace Science and Engineering Post 173 were in the role of guests.

While at Edwards the young men, who have their career sights zeroed in on the aerospace industry, were thrilled by such Air Force wonders as the X-21, the F-5, the T-38, the B-58 Hustler, the C-131 Hercules, the NF-104 rocket airplanes, the B-57 Canberra, and the famous high-flying U-2.

Mr. Nolan is Norair Post Committee chairman and Mr. Kissel is tour chairman.

Another tour is in the works, due for sometime in April. This one is tentatively scheduled as a visit to General Motors Fisher

Body and Chevrolet plants.

Norair special purpose scouting posts meet on Tuesday and Wednesday nights twice a month. High school upper classmen are eligible to join. Boys are asked to call Mr. Nolan at Norair, 678-9111, extension 1323 or ask their boys' counselor at school for complete information.

Although the Edwards tour was on a regular school day, all boys attending received permission from their principals to make the trip and use it as part of their class work.

This is the second year Norair Division has sponsored BSA special purpose explorer posts. Called the "new look in scouting," the program seeks to bring boys into contact with the actual environment to be encountered in their chosen life's work.

Grace Lines Official to Give Luxury Tour Facts

Anticipation is building up for the NRC Travel Club's luxury ocean voyage to the Caribbean and South America scheduled to depart Los Angeles May 14.

It will be remembered that this cruise is for 15 days, \$818, all inclusive and all first class.

To help relieve excitement pressure, Dave Carney, Travel Club commissioner, announces that Gordon Oliver of the Grace steamship company on whose liners the tour will be taken, will be on hand at the Club meeting to be held at the Alondra Club, 16411 South Prairie Avenue, Lawndale, Friday evening, March 20 to give members and their friends detailed information about this dream vacation trip.

TWO NEW DANCE CLASSES SET

NRC Dance Club announces a new series of classes scheduled to start Thursday, March 19 at the NRC Clubhouse, states Hank Solak, commissioner.

There will be two classes, from 7:30 to 9 p.m. in the fox trot and rhumba, and from 9:15 to 10:45 in the rhumba and western swing.

Cost for 10 weeks is \$10 a person.

Signups will be limited to the first two meetings, March 19 and 26.

Bill Martin is the instructor. Bill, as all Northrop people who participate in Dance Club affairs know, uses the group method of teaching which calls for new partners at regular intervals. Wallflowers are against the law.

SPECIAL CACHET PROJECT FOR NRC STAMP CLUB

NRC Stamp Club Commissioner Tom Brazil states that plans for a special cachet commemorating Northrop's 25th anniversary will be formulated at the next meeting.

All Northrop employees and their friends are invited to the gathering, which will be held at the NRC Clubhouse, at 7:30 p.m. next Monday, March 16.

CABIN CRUISER, 1958 Glasspar Delmar, American trailer, \$1695 or trade for Glasspar Avalon or Tacoma, 941-5240.

LINCOLN CONTINENTAL, 1948, coupe, 1948, low mileage, V-12, \$2000 or trade for sports car. OR 1-8697.

There is a limit of 25 state-rooms available to NRC Travel Club members.

After flying to New York and a short stopover for the World's Fair the group will sail from that port to such West Indies places of enchantment as Curacao, La Guaira, Aruba, Kingston, and Nassau.

Blanche Cook of Northrop Norair Personnel Activities will be at the meeting to accept \$100 deposits, an important, necessary and finalizing part of the procedure.

In addition to Mr. Oliver's appearance, Surl Kim of Kim Tours will talk on a proposed Alaskan tour for later in the summer and will also cover plans for the traditional yearend Hawaiian holiday.

French pastry and coffee will be served on the NRC house.

SURF FISH-OFF AT LOS ALAMITOS

Next weekend, March 14, the NRC Surf Fishing Club, John Pawlicki, commissioner, invites all Norair people to attend the yearly fish-off to be held at Los Alamitos Channel.

Time of the fish-off is 6 a.m. to 12 noon.

Suggested baits for the trip are crawdads, bloodworms, muskels and sandcrabs.

Members can register for awards at Norm's Marina Bait and Tackle shop, 1500 Pacific Coast Highway, Seal Beach. There will be an NRC sign, says John. The shop is located approximately three miles south of the Vet's hospital. It will be closed from 1 a.m. to 2:30 a.m.

NRC awards will include the regular monthly trophy and novice trophy. Norm's special prizes include rods, reels, lines, hooks and sinkers.

REGISTRATION OF VOTERS

A plant registration of voters service has been announced by Personnel Activities.

Deputy Registrars Margaret Chaput and Bernice Woods will be here March 23, 30, and April 6. Hours 11 a.m. to 1 p.m.

Registration deadline for the June primary is April 9.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

• Wednesday, March 25, 1964

HAWTHORNE

PALMDALE

EDWARDS AFB

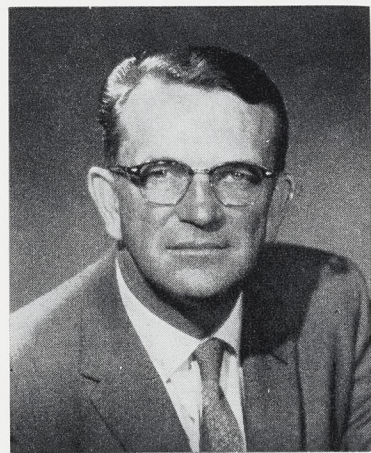
SAN ANTONIO

Jones Announces Top-Level Promotions

Dick Nolan to Headquarters In Line Management Position

Dick Nolan, Corporate vice-president and former Norair general manager, now moving to the Corporate office in an overall management position, will apply his advanced techniques to business affairs throughout the entire company.

His know-how, gained from many years in aerospace, will be



DICK NOLAN

extensively utilized to produce high quality, high performance military products for use both at home and abroad.

In making the announcement of Mr. Nolan's appointment, Mr. Jones stated, "Mr. Nolan is an outstanding executive who has done an excellent job of introducing advanced management

and production techniques in the Norair Division. His new post will be in a line position from which we can use his tough minded management skills across the company, to cut through operating problems and to develop new approaches to lower costs and greater profits. He has been with Northrop for nearly 25 years, holding many key executive positions throughout the corporation."

Mr. Nolan joined Northrop when the Company was first formed in 1939. He is number three man in Company seniority, being exceeded by one week by Tom Chittenden, Norair superintendent, second shift Materiel, and Thomas H. Quayle, corporate vice-president, Commercial and Industrial Programs.

Prior to being elevated to the post of Corporate vice-president and general manager of this Division, he successively served as Northrop manager of Production Engineering, assistant factory manager, director of Service, general manager of Northrop's Anaheim facility, and vice-president and manager, Manufacturing, Northrop Norair.

Mr. Nolan has been associated with aircraft enterprises since 1929. He was with the original Northrop Corporation — now
(Continued on Page 3)

TAC TO TRAIN F-5 MAP PILOTS AT WILLIAMS

Williams AFB, Ariz. (AFNS)—Allied student pilots will begin training in the Northrop F-5A jet trainer here in September under the Military Assistance Program. Tactical Air Command instructors, now undergoing transition training at Randolph AFB, Tex., will train the student pilots while Air Training Command personnel instruct the ground crews in support operations.

Earns \$749 Idea Award

Top award to date for 1964 has been earned by J. P. Hewes, shop load control man, Shop Loading.

He has received a check for



J. P. HEWES

\$749 as a result of a paperwork savings idea which has eliminated.
(Continued on Page 2)

Horner Made Manager of Norair and Space Labs

Northrop Norair's new general manager, Corporate Senior Vice-president-Technical Richard E. Horner, assumed the top office in the Division, Monday this week.

Former general manager, Corporate Vice-president Dick Nolan, who has guided Norair affairs for the past six years has assumed a top-level line management position at Corporate headquarters in Beverly Hills.

In announcing the new appointments last week, Northrop President and Chairman Thomas V. Jones, stated that the move assigns broader responsibilities to both executives. Mr. Horner who, along with his Corporate duties, is general manager of Northrop Space Laboratories, will retain that post in addition to his Norair general managership.

"Mr. Horner as senior vice-president-Technical, will direct the Norair Division and the Northrop Space Laboratories," Mr. Jones stated. "Both organizations have existing strong executive leadership. Northrop Space Laboratories will report to Mr. Horner through Roy Jackson, vice-president and assistant general manager. Norair will report to Mr. Horner through the Division's principal executives, F. W. Lloyd, vice-president and assistant general manager-Operations; W. E. Gasich, vice-president and assistant general manager-Tech-

nical; J. G. Macdonnell, treasurer; T. L. McCarthy, manager, Administration department; and R. S. Catlin, manager, Quality Control department."

In a message to all personnel, Mr. Horner stated, "I am proud to be associated with the men and women of the Norair Division. The past performance of

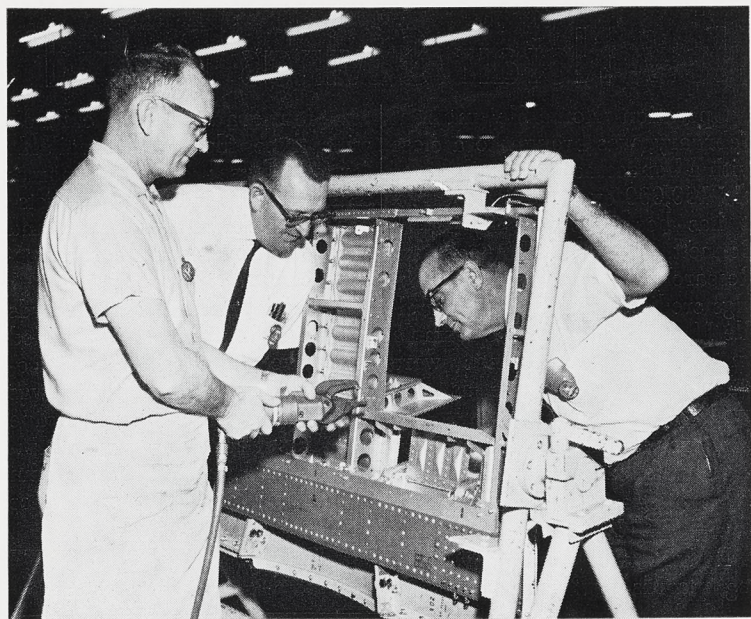


RICHARD E. HORNER

this organization stands as a testimony to the capability of its people and I consider it a privilege to be one of you.

"The Norair Division is delivering products of outstanding quality. Our Technical people have made substantial progress in the identification of technologies upon which we can base
(Continued on Page 2)

A Better Way



COST REDUCTION—Improvement in assembly techniques eliminates three tools, does better job, saves time, saves money. C. A. Tollefson, foreman, T-38/F-5 Wing and Aft Fuselage, center, called in Standard Tool Liaison man G. "Ted" Costa to take a look at dive brake magnesium riveting, a job that required two men, a 4X riveter, a special set, and a bucking bar. Ted, who is at right, forthwith picked American Pneumatic alligator for the work, designed new jaws and, presto, came up with a one-man operation. He also eliminated the aforementioned bucking bar, the 4X, and the special set. Operator L. F. Shadowens, at left, gives easy-does-it show how.

System Program Office Greets the F-5 Fighter



FIRSTHAND LOOK AT THE F-5A—Wright-Patterson Air Force Base personnel of the T-38/F-5 System Program office, Aeronautical Systems Division, got firsthand look at F-5A when it recently arrived at the base for tests. Standing, left to right, Colonel George C. Hozier, SPO director; June Coatney, Rose Matfield, James McNally, Barbara Nourse, Milly Hall, Lt. Colonel J. D. Werlich, Charlotte Armacost, Lieutenant Walter Johns, Julia Pringle, and Robert Hoban. Kneeling, left to right, S. G. Steffens, SPO assistant director, and John Root. F-5A 6005 is at Wright-Patterson for weather testing.
AIR FORCE PHOTO

Horner Made Manager of Norair and Space Labs

(Continued from Page 1)

product development of still greater importance to our nation's programs of the future. I am confident that with the continued application of your skill and the dedication for which the Norair Division is known, our future as an important segment of the aerospace industry is bright."

Mr. Horner who has been senior vice-president-Technical at Northrop since July, 1960, received his bachelor of science degree in Aeronautical Engineering from the University of Minnesota in 1940 and his master of science degree from Princeton University in 1947.

He was commissioned a 2nd Lieutenant in the United States Army Air Corps as a military pilot after graduating from the Randolph and Kelly Field Flight Training Schools in San Antonio, Texas. During World War II he served as a Squadron commander and Group Operations officer during the African and Sicilian campaigns of the Mediterranean Theater.

He returned to the United States to be assigned to flight test activity at Wright Field in January 1944. In 1945 he became director of Flight Test Engineering at that location, a position which he held when he requested and received relief from active duty as an Air Force colonel in 1949.

From 1950 until 1955 he was a part of the Air Force Flight Test Center where he became technical director and senior engineer on the management staff conducting such diverse activities as flight test evaluation of the Air Force Century Series fighters and modern jet bombers, flight research on the X series of aircraft, high-speed track testing and implementation of the Air Force Rocket Engine Test Station with test programs on the Bomarc, Navaho and ICBM boosters.

In May 1955, Mr. Horner accepted a position as deputy for Requirements in the office of the assistant secretary of the Air Force, Research and Development. In February of the following year he assumed the duties of the assistant secretary when that position was vacated, and in June

of 1957 his nomination by the President for appointment to the office was approved by the Senate. This was an appointment which he held for two years until he was named to be associate administrator of the National Aeronautics and Space Administration in June of 1959. It was from this position that he joined the corporate staff of Northrop in July 1960.

While in the Office of the Air Force Secretariat, Mr. Horner was responsible for many facets of the Air Force missile development program as well as all other elements of the Air Force's technical activities. He frequently represented the Air Force program to the United States Congress. He was also extensively involved in the coordination of the U.S. research and development efforts with those of other nations in the Western Alliance.

In his position with NASA, Mr. Horner was responsible for the operational management of the research and development program of that agency. He was instrumental in establishing the organizational alignment and functional work patterns for the agency and was primarily responsible for gaining program acceptance in the Congress.

MEMBERSHIP IN COMMITTEE ON MANAGEMENT

Norair's Deputy Assistant General Manager-Technical Milt Kuska, has been appointed a member of the American Institute of Aeronautics and Astronautics Technical committee on management, it has been announced.

Mr. Kuska was advised of his appointment by Courtland D. Perkins, president, AIAA, last week.

Technical committees in the nationwide organization are responsible for the technical affairs



MILT KUSKA

of AIAA in support of specialized professional areas of concern to the membership.

Duties include:

Proposals for specialists' and theme meetings.

Organize agendas and sessions for both annual and theme meetings.

Monitor the publications of AIAA for quality and adequacy of the technical content.

Counsel AIAA editorial staffs and review technical papers proposed for publication.

Chairman of Mr. Kuska's committee is Sidney Sternberg, vice-president and general manager, Electro-Optical Systems, Pasadena, California.



COORDINATORS—Norair Division's Cost and Management Improvement coordinating team reviews progress as depicted on an outsized bulletin board at the plant cafeteria. From left, coordinators are R. G. Bredesen, chief, Programs and Requirements—Product Support; Kurt Reif, Manufacturing cost coordinator—Manufacturing and Materiel; Warren Sparks, overall plant coordinator; Vinton Higbie, chief, Administration and Facilities—Contracts and Pricing; Jack Meyer, assistant to the director, Budget Administration—Finance; W. L. Gillotti, project master planner—Administration; Ted Hamlet, special assignments for Program Administration—Technical. Not in photo, Jack Apodaca, budget analyst—Quality Control.

Retirees For February And March

The following Northrop people retired during the months of February and March:

L. J. "Jerry" Baker, Pace Program.

Walter Brophy, Tooling and Fabrication.

Glen Dawe, Tooling, Machine and Fixture shop.

Orville Hill, Assembly stores.

Frank Miranda, T-38/F-5 Planning.

Manfred Troxel, Planning and Support.

Russell Bunn, Ranger Engineering.

Carl Christensen, Cost Estimating.

Percy Collings, Templates and Form Tools.

Harold Elson, Templates and Form Tools.

Ralph Lockwood, Property Management.

Roman Kupka, Advanced Production and Weld.

William Liermann, Assembly stores.

Georgia Mallonee, Materiel-Raw Stock.

Cyrus McClean, Engineering Value Analysis.

Gerald Rector, Assembly stores.

Otto Safarik, Engineering Property Administration.

Francis Winkler, Sheet Metal shop.

SADIE HAWKINS NIGHT PLANNED FOR APRIL 4

Sadie Hawkins Night reminder—

All Division "hillbillies" are asked to remember that Saturday, April 4, is Sadie Hawkins Night and the NRC Clubhouse is due for a storm.

There will be a "Dogpatch" versus Skonk Hollow fashion contest, plus dancing and fun galore.

Free cracklin's, chittlin's, turnip greens, grits and corn pone.



MORE DOLLARS FOR DEFENSE—Jack Mannion, Norair manager, Manufacturing and Materiel, agrees with Plant One Receptionist Betty Rockey, that the revolving Cost and Management Improvement Program lobby displays are an effective assist to President Johnson's nationwide cost reduction program. Manufacturing department scores high in their record of cost consciousness.

Operation Roundfile Writes New Norair Savings Record

Operation Roundfile month, February, was brought to a close with a handsome savings increase of \$150,000 over the 1963 drive, it has been reported by B. R. Bonnett, director, Management Research and Services. Total savings credited to Operation Roundfile II are \$271,892. The formula on which these savings were calculated is the same as that used by the Federal Government.

A breakdown of Roundfile savings as to category:

Destruction of unnecessary records—\$16,110.

Reduction of storage by moving records to Records center—\$15,133.

Elimination of reports—\$12,593.

Removal of names from distribution lists—\$19,735.

File cabinets emptied—\$10,000.

Forms obsoleted and not replaced—\$167,000.

Miscellaneous—\$21,321.85.

Separate items that figured in the increase were emptying of

115 four-drawer filing cabinets with these files made available for other use; over 200 names eliminated from distribution lists; over 100 forms obsoleted; and over 840 boxes sent to the Records center.

Leo Richman, chief, Records Management, who spearheaded the drive, reported that the co-operation of all departments was outstanding. Special credit is due the Cost and Management Improvement departmental team which gave valuable assistance during the drive.

NORTHROP NORAIR NEWS

VOL. 22 NO. 3

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A NORTHROP CORPORATION PUBLICATION
NORAIR DIVISION

Published every other Wednesday

CHARLES BRADFORD, Editor

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Suggestion

(Continued from Page 1)

inated over 50,000 sets of orders, masters and variables in the T-38/F-5 and Boeing contracts.

The suggestion which has been under test since October 1962, was presented in three parts. It was directed at the use of form 76-73 and made possible (1) the combining of several sales orders on one form, (2) changing the adhesive bonding record system, and (3) in some cases, changing the increment code system from alphabetical to numerical.

Norair's management award committee, F. W. "Bob" Lloyd, vice-president and assistant general manager-Operations; Welko Gasich, vice-president and assistant general manager-Technical; and John B. Clark, director, Industrial Relations termed Mr. Hewes' idea an outstanding contribution to the Division's cost and management improvement program.

GEORGE STERLING, OPINDOC MAN, REGULAR VISITOR TO T-38 BASES

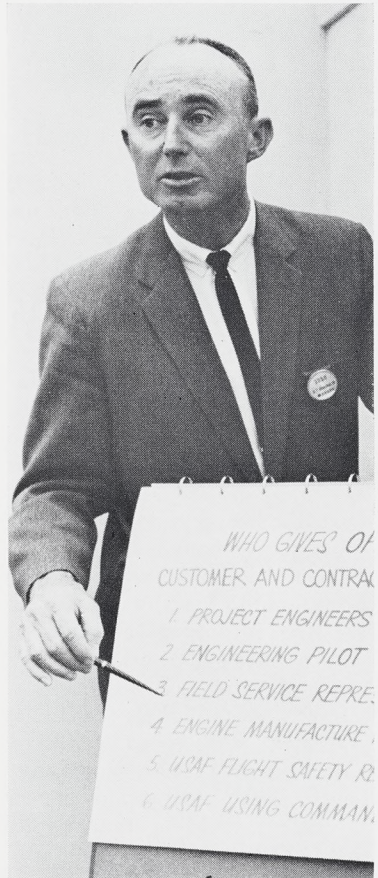
The second in a series on Customer Relations personnel.

Lake Elsinore has water in it now. After being dry and dusty for several years.

And this is of more than passing import to George Sterling, chief, OPINDOC (Operations Indoctrination group), Customer Relations. For George was an electrical and armament leadman on the N-3PB, Norwegian patrol bomber, and he was a part of the crew that went to Elsinore when the World War II seaplane was put through her paces there. This was the Company's first prime contract.

Good old days and a long time ago. Twenty-five years, more or less.

That George and his buddies did good work is testified to by



GEORGE STERLING

the fact that the N-3PB was a good airplane. She was the fastest military seaplane in the world.

Her service ceiling was guaranteed to be 24,000 feet. It turned out to be 29,000. Top speed exceeded the spec from 228 to 260. Cruising speed promised at 184 mph was 215. Landing speed spec was 72 mph. It was actually 65.

Ten per cent better than promised all the way.

PUDDLE JUMPER?

All these figures might seem puddle jumper by today's T-38/F-5 measurements, but remember that this was the raw beginning. The jet engine was hardly a dream. Wing fillets, a Northrop first, were brand new. Cowling around the engines was new.

George has been an active positive participant on this stage of aerospace progress. He was an "experimental" man, a very high honor, the elite corps of the industry then as it is today. Every Northrop Norair product has felt the touch of his hand. The Wings, N1M, N9M, B-35s and '49s, the MX-324 (world's first rocket airplane), the C-125, V-72, A-31, XP-56, F-89, and on down the entire parade.

This background, plus a con-

stant study program ranging from Navy electronics through industrial engineering, business administration, industrial instrumentation, psychology, the principles of management, and public speaking provides George with an ideal set of tools to successfully discharge his OPINDOC duties.

Let's talk about OPINDOC

By Aerospace Reporter

first—. This is a team effort by men who know the airplane from nose to tail. George administers the program and coordinates the work of the team. He is the quarterback.

So far the OPINDOC record looks "all American."

Who takes part in OPINDOC? Participants are drawn from the T-38/F-5 Program department, Flight Operations, Product Support, Customer Relations, General Electric, the Air Force Directorate of Aerospace Safety, Norton Air Force Base, and from the Air Force using commands.

COMPANY POLICY

Company policy dictates that as each new base phases in the product and conducts engineering ground school of the first pilot training class, an OPINDOC team will call with briefing and know-how to answer the hundreds of questions. Follow-on visits are rigidly scheduled to take place each six months thereafter, or oftener, if company management or the Air Force sees the need.

"Cooperation and support make OPINDOC go," says George. "All departments go all out when they are called. Day or night. And I want to give big thanks to Graphic Services. Half the OPINDOC job is illustrating what you are talking about. Posters, charts, and graphs are as much our tools of the trade as knowing the airplane and being able to talk clearly about it and with authority. And also thanks to the Photolab for their help with slides and movies.

QUESTIONS AND ANSWERS

"There is always great interest shown by the Air Force people in our OPINDOC sessions. Questions and answers come in thick and fast. Those we can't answer or lack immediate sources to verify, we bring home and turn over to the man who knows—often times it is the designer himself."

OPINDOC is now gearing up to the new Norwegian F-5 order. First will be orientation team visits to the site of MAP instructor pilot training, a TAC base program. Following this, visits to Norway will be made for the purpose of indoctrinating all key personnel who have to do with that country's transition to the airplane.

One of the biggest payoffs for the T-38/F-5 program, Customer Relations men will tell you, has been the leased T-38 airplane. George rides herd on this important activity.

No other single medium speaks the Talon language better than a record-breaking leap into the blue. The flight, besides being an honor allows the airplane to prove its qualities under the crit-

ical hand of the men who will stake their professional reputations, even their lives, on its worthiness. Also a rapport develops. Airplane conversations among people in the business are non-stop affairs as those who spend time in the readyrooms so well know.

Since the leased aircraft started taking people aloft in 1961, over 900 flights have been made, with few riders having made more than one flight. Representatives from USAF, USN, USA, USMC, DOD, Congress, the executive branch, newsmen, and 14 foreign countries have tried the T-38 on for size.

Typical of the reaction is that of the astronauts who immediately after their flight session at Houston asked that T-38s be assigned to their use as an ideal vehicle for space flight readiness training.

One of the most important times in the life of a new airplane is when the customer takes delivery.

Working closely with the Northrop Air Force plant representative's office, George and his people dedicate themselves to making this a satisfying and beneficial experience for the man from the using base who comes to take the airplane to her new home, be it Randolph, Vance, Reese, et al.

Upon the pilot's arrival, usually Los Angeles International via commercial jet, he is picked up by Company courier and brought to the plant where he checks in at the Air Force office.

OPINDOC "CAN DO"

OPINDOC "can do" from then on. A tour of the plant. Airplane talk with Company pilots or engineers. He is presented with a special delivery pilot's guide. Hotel reservations, should he be here overnight. Transportation via Company Piaggio to Palmdale. Flight briefings by Company pilots at Palmdale.

Included is a complete set of current FLIP (Flight Information Publications) charts for his use.

A pilot's lounge, locker, room, showers are provided.

George's home phone number is listed as a 24-hour contact point for pickup pilots. This includes Sundays and holidays.

Aside from the airplanes they come to get, George says Norair's star attraction is our twin assembly lines.

"It is an experience to see the T-38 and the F-5 being constructed side-by-side on those overhead rail lines. And the color scheme pleases everybody that sees it. As popular as Disneyland," says George.

A recent issue of the Talon Service News did a countdown feature on just what happens when the Air Force sends their man for a new T-38. "Easy Pickup" is the title and the issue is very popular with the ATC.

George's job is to make sure that when the delivery pilot clears the runway at Palmdale he knows all about the Talon, knows all about Northrop, has seen the airplanes being built, and shook hands and talked to the people who build them.

Nolan to Corporate Hdq. In New Line Position

(Continued from Page 1)

Douglas-El Segundo—from 1934 to 1939.

When Mr. Nolan came to Norair from his Anaheim general managership, the Division was heavily engaged in production of the USAF F-89H and "J" Scorpion all-weather fighters and the Snark Intercontinental missile. Subcontract work was also under way on the Boeing 707 and KC-135, the North American F-100, and McDonnell's V-101 and F4H, and the Lockheed Electra.

Under his leadership this responsibility, plus the multiple task of T-38/F-5 development, was successfully met and with a distinguished efficiency record.

The F-89 saw extended service in defending the continent against aggression in the far northern reaches of the hemisphere including Alaska and Greenland. The Scorpion is presently in Air National Guard work and flying Air Defense Command missions.

THE T-38 TALON

The T-38 Talon, now in production for the Air Training Command, was the nation's first supersonic twin-engine trainer.

The highly versatile F-5 tactical fighter, as News readers know, was recently ordered by Norway in quantity numbers from the United States Government to re-equip their air force where missions and operations range at least 20 degrees of latitude and with flying conditions to match.

Norway's choice, it is understood, aside from being guided by the airplane's exceptional performance characteristics, was based on its substantial cost advantage over Century Series competitors; easy maintainability, outstanding reliability, and already promising indication of a high degree of flight safety.

NEW TOOLS

To achieve Norair's position in the industry's forefront as an efficient producer, Mr. Nolan instituted many new and unique management decision making tools and cost controls.

These have contributed to a highly enviable schedule record. During the past five years commitments have been consistently met with one 18-month period being completely concurrent in all details on all contracts.

At Norair, one of his most noted achievements was the installation of Automated Operations Control (AOC). This technique which utilizes automated data transmission and high speed computer recording and updating of information for control of work in process has enabled Norair to turn out airplane after airplane completely free of line shortages.

LEARNING CURVE

Another valuable tool that took form under Mr. Nolan's guidance is Manufacturing Cost Improvement Program (CMIP). This was specifically installed to attain control of T-38/F-5 learning elements to achieve steeper learning curves at lower levels much earlier in the contract than was formerly possible. The program was effective in its goal of (1) estab-

lishing a cost line for the product; (2) determining, in detail, all elements which can affect the learning curve and identification of all factors within these elements to attain the base cost value; (3) assigning responsibility for action, schedule action and follow-up performance; and (4) to adjust target budgets as cost trends improve.

Management Operating Report and Budget Review (MORBR) is a technique for keeping top management continually apprised of contract/budget/performance status on all major programs so that timely decisions and trade-offs may be made.

Integrated Management Systems is the planning and timing for progressively automating business systems. Components of this system which are already or will shortly be implemented and which are and will be of significant value to the T-38/F-5 program are Master Parts List, Automated Bill of Material, Automated Logistics System, and further refinement of Automated Operations Control.

Performance and Cost Evaluation, PACE, a program that took shape under Mr. Nolan's implementation, has been termed the "aerospace substitute for a moving line." It is an analytical statistical method of gauging the effectiveness of group performance of an assigned task. It allows management to quickly evaluate results and immediately determine the scope of required corrective measures.

VALUE ENGINEERING

In his sustained use of the twin management cost and suitability tools Value Engineering/Value Analysis, the former is practiced both in the conceptual phase and in the detail design phase of a program to ensure the most efficient design. Subsequent to release of engineering information, Value Analysis reviews the reliability, function and cost relationship of all components and manufacturing processes.

The foregoing, plus many other innovations have recently been performing outstanding service to President Johnson's nationwide cost improvement program. Norair Division has scored consistently high in this effort to realize more military materiel for taxpayers' dollars.

In January, the T-38 was held up as an ideal illustration. The Air Force made industry circulation of two films showing examples of Talon cost reduction achievements.

Total Company cost improvement figures mount each day with the savings figures in the multimillion dollar range.

Also the management techniques and tools brought into use at Norair by Mr. Nolan, plus his full utilization of the Division's skills and dedication are now being reflected in the T-38 in reduced operating costs and an exceptionally low attrition rate.

This same know-how, in Mr. Jones' words, "his tough-minded management skills," will be used across the company to cut through operating problems and to develop newer approaches to lower costs and greater profits.



RIDES WANTED

7 a.m. — 3:45 p.m.

VALLEY DRIVE & GOULD LANE, Hermosa Beach, Elisabeth Briggs, ext. 4296, 374-3333.

8 a.m. — 4:45 p.m.

VAN NUYS & ROSCOE, Panorama City, Lynda Witherwax, ext. 2521, 364-2055.

ORANGE & PUENTE, West Covina, Robert E. Herfert, ext. 2515, YO 2-1821.

LOS ALAMITOS & BRADBURY, Los Alamitos, R. L. Jones, ext. 2518, GE 1-9620.

4:45 p.m. — 1:15 a.m.

MAIN ST. & MARENGO, Alhambra, Gladys Kinsel, ext. 4092, AT 9-7397.

RIDES OFFERED

7 a.m. — 3:45 p.m.

186TH & AVALON, Gardena, Genaro Chapa, ext. 2568, DA 3-9447.

8 a.m. — 4:45 p.m.

ORANGE & PUENTE, West Covina, Robert E. Herfert, ext. 2515, YO 2-1821.

LOS ALAMITOS & BRADBURY, Los Alamitos, R. L. Jones, ext. 2518, GE 1-9620.

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

BOOKCASE w/planter on top, complete w/artificial plants, 2 shelves, 38" high x 48" wide, \$25. DA 5-5245.

LENS, 35mm wide angle, f/2.8 automatic, unused, Schneider Curtaqon for Exakta, \$110. ST 8-9709.

REFRIGERATOR, Frigidaire, \$35. AX 2-4958.

TV, 21" Hoffman, blonde console, 8-yr.-old, \$35. OS 5-7740.

DOG HOUSE, redwood, lae-size, carpeted, \$15. FA 1-0020.

HOUSE, 3-bdrm., guest room, heated pool, 1 1/2-bath, sprinklers, w/w carpeting, disposal, water softener, Morning-side area, \$29,500. PL 6-4978.

LAWN EDGER, small blade side-cutting lawnmower-type, 1-yr.-old, \$5; aircraft battery, 12-volt, 6-mos.-old, \$5. 378-6655.

FURNITURE, maple, dinette set w/4 chairs, \$15; end tables, 2, lamps, 2, \$40. 370-1446.

CADILLAC, 1952 4-dr., 1-owner, \$225. 376-5827.

DINING TABLE, walnut w/6 chairs & buffet, \$75; vanity & bench, walnut, \$10; rug, 9'x12', American Oriental, \$35; waffle iron, \$7; fireplace set, copper, \$10. GR 4-1627.

MERCURY, 1954 h/top, stick shift, rebuilt engine, new tires, \$300. 327-8035.

DINING SET, china buffet, table & 4 chairs, alossy finished mahogany, 6-mos.-old, \$450. 757-7637 from 5:30 to 7:30 p.m.

MERCURY, 1949 2-dr., 1952 Ford eng., 2 yrs. since rebuilt, floor shift conversion kit, \$50. 833-6053.

HEDGE TRIMMER, Skil & 100' cord, \$20; wheelbarrow, contractor-type, \$20; used brick, 1300, 4¢ each; trimmer-lawnmower, professional-type, \$150; motor, GE 1/3, elec., \$5; dinette set, chrome, drop leaf table & 4 chairs, yellow, \$20; washing machine, Whirlpool, \$35; range, gas, 4-burner, \$10. FR 5-3557.

CHEVROLET, Bel Air, 1956 2-dr., motor recently o/hauled, \$400. EA 2-2152.

REFRIGERATOR, Frigidaire, 11.9 cu. ft., cross top freezer, \$20. Box 301.

WASHER, automatic, ABC, \$10. 679-8867.

AD, RIDE FORMS

Going My Way and BBSF forms are available from Company stockrooms.

Going My Way is Form 59-228. BBSF is Form 59-308.

FOR SALE

OLDSMOBILE, F-85, 1961 deluxe 4-dr. sedan, r/h, w/s/w, \$1400. 325-3859. A

TAPE RECORDER, Webcor royal deluxe, 2-track, hi-fi, approx. 4-yr.-old, \$100 or best offer. OS 5-5489. A

HOUSE, 4-bdrm., 1 1/2-bath, detached 2.5 car garage, corner lot, 1301 sq. ft., h/wood floors, close to Santa Ana Fwy., \$25,100; Chevrolet station wagon, 1959 9-pass. Kingswood, r/h, p/brakes & steering, \$1225; tube & transistor data, RCA, compl. set w/revisions, \$25; lots, approx. 1 1/4 miles from Arrowhead Lake, level, w/electricity & water, \$3000 for pair. UN 3-0735. A

20 ACRES in Antelope Valley near Willow Springs, terms to suit buyer, \$395 an acre. FR 8-1026. A

MOVIE CAMERA, Kodak Brownie 8 w/f/2.7 lens, \$12. OR 1-6692. A

LOVE SEAT & matching chair, green leather, \$75; end tables & coffee table, mahogany, \$10 ea.; Lincoln, new motor, 1953, \$250. NE 5-2447 after 4:30 p.m. A

HOUSE, by owner, 3-bdrm., 1 1/2 baths, stone fireplace, carpet, landscaped w/waterfall, near South High, Torrance \$26,500. FR 5-8891. A

FORD, 1956 2-dr. club sedan, w/w, r/h. \$275 or best offer. OS 5-0295 after 5 p.m. A

MERCURY, Montclair, 1956, r/h, \$350. FR 6-1043. A

FORD V-8, 1957 sedan, floor shift, 4.11 rear end, o/load springs, hvy-duty shocks, \$550. 756-5720 from 4 to 8 p.m. A

TAPE RECORDER, Wollensak, electronic-control, 4-track stereo, model T-1616, \$150. 322-1892. A

DIAL INDICATOR, Starret 196, complete w/attachments, \$12. 892-3000. A

FORD, Fairlane 500, 1957, Fordomatic, p/steering & brakes, \$500; Mercury, 1951, auto, trans., \$75. 329-9484. A

CAMERA, Speed Graphic, 4"x5", 6 holders & rollfilm adp optar lens, elec. shutter & flash attach., \$230. OS 5-8278. A

BAR & 3 STOOLS, custom-made Hawaiian rattan, used 10 mos., \$100; rattan rug, 12'x12', \$15. 943-6469. A

HIDE-AWAY CAMPER, 8', 1/2 cabover sleeper, sleeps up to 6 people, \$595 or make offer. DA 9-3932. A

RADIO, FM transistor, elec. outlet-type, \$10. DA 9-5364. A

IRONER, Kenmore, \$40; coffee table, small, maple, \$10. FR 7-3806. A

BUFFET, walnut, \$25; china cupboard, \$15; child's training chair, \$2; high chair, wood, \$5; playground equipment, metal, \$10; car seat, \$1; bicycle, boy's Schwinn, \$5. EX 1-4860. A

DISHWASHER, GE Mobile Maid, portable, 6-mos.-old, \$100. FR 5-2866. A

HOUSE, 4-bdrm., 1 1/2-bath, dining room, family room, built-in kitchen, landscaped, block wall, lae. lot, lae. covered patio. Garden Grove, \$24,950. 539-8792. A

FORD, 1956, new clutch, transmission, brakes & paint, \$400. EA 2-3161. A

SECTIONAL, 3-pc., brown, \$35; sofa, matching chair, green \$20; coffee table, walnut, \$5; shag rug, 9'x12', brown, \$5. OS 9-9361. A

VOLKSWAGEN PICKUP, 1959, new tires & battery, engine o/hauled, 43,000 miles, \$825. 377-2160. A

HOUSE, 3-bdrm., 1 1/2-bath, hill section of Manhattan Beach, w/w carpets, fireplace, \$26,500. FR 4-2645. A

PLYMOUTH station wagon, 1953, rebuilt trans., o/drive & motor, 4 near new tires, \$150. DA 9-9621. A

DESK, office-type, walnut finish, \$30; roller skates, white, lady's, size 7, \$8. 835-7843. A

PT-22, R-56 engine, 188 hrs., ceconite cover, radio chutes, goggles, helmets, intercom, spinner prop., spare prop. on new hub, Nylon seat belts, shoulder harnesses, based at Hawthorne, \$2500. OR 4-1595. A

EXERCYCLE, Central Mfg. Co., \$25; bicycle, Schwinn, girl's, 24", \$15. FR 1-6328. A

T-BIRD, 1963, convert. auto, trans., p/brakes & steering, windows, r/h, \$3300 or \$300 & take over payments on appd. credit. WE 1-9968. A

MG MIDGET, 1963, radio & access., 13,000 miles, \$1550. 363-1092. A

BABY CARRIAGE & car-crib, \$7 for both. PL 6-8413. A

REFRIGERATOR-FREEZER, GE, 13 cu. ft., elec., \$50; stove, O'Keefe & Merritt, gas, oven, broiler, grill, \$50. FR 7-1074. A

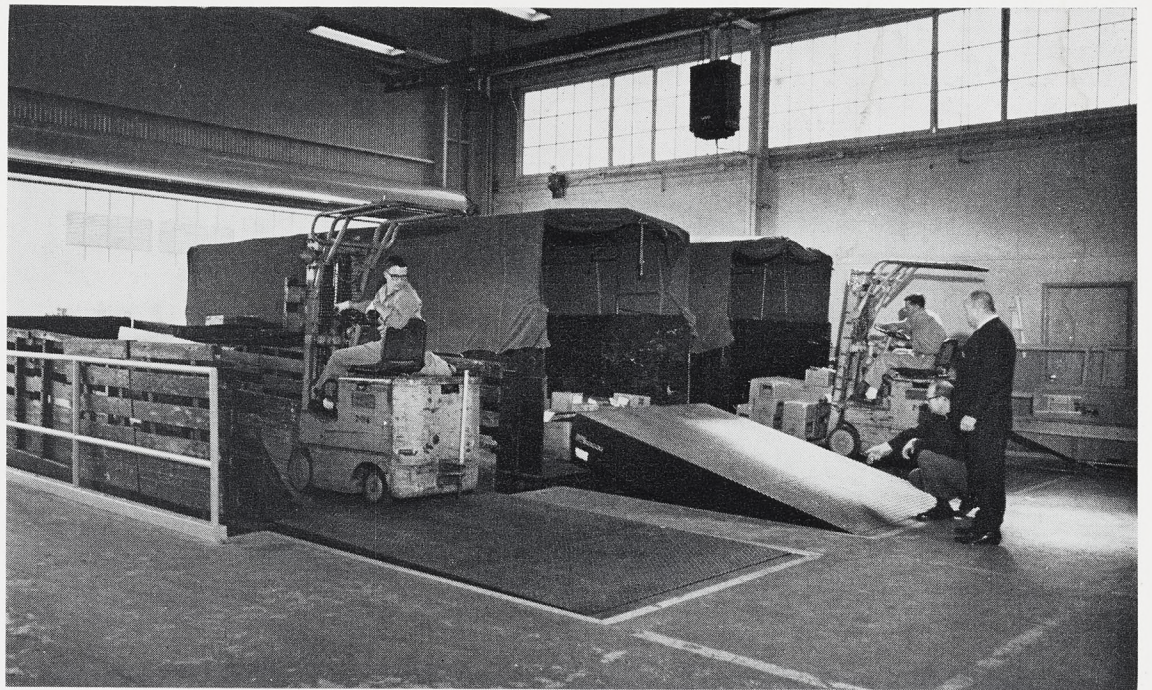
CORVETTE, 1963, red convert., 4-spd., \$3195; Ford, 1946 Woody, floor shift, \$390; Mercury Montclair, 1956 h/top, full power, \$295 or make offer. FR 5-6716. A

PLYMOUTH Belvedere, 1960, 4-dr., \$200 equity & assume payments of \$45.50. 566-2929. A

TV, maple, \$75; hi-fi, AM/FM radio, Packard Bell, \$100, or \$150 for both; motor, 1/2-hp, elec., 110-volt, \$25. 370-4778. A

SLOOP, 26' Thunderbird, 1963, fully equipped, \$5900. EX 1-1673. A

New Transportation Safety Measure



HI-LO IN ACTION—Transportation personnel are shown here using the new counter-balanced dockboards recently installed in the Norair Hawthorne terminal, Plant Four. Jack Given operates the forklift at left; Ken Tary, leadman, and Link Hoen, supervisor, center, check the operation, and right background, Harold Barnett, loads shipment.

WANTED TO BUY

RIFLE, 22-cal., automatic. OR 1-1660. B

SMALL OXYGEN & acetylene welding tanks. AX 1-0025 after 5 p.m. B

PARKING LIGHTS or Ahooa-type horn for model A Ford, working or not, pay cash & will pick up. FR 1-2948. B

BICYCLE, boy's standard 26". OS 5-0010. B

HAND GUN, 32-cal. revolver, American make, reasonably priced. 375-7038 eveninas. B

RENTALS OFFERED

APT, 2-bdrm., new, deluxe completely furn., near Northrop. \$150 mo. OR 2-3280. E

APT, 1-bdrm., deluxe, new, 1 mile to Northrop, unfurn., \$80; furn., \$95. OS 5-9695. E

APT, extra large, 2-bdrm., carpet, drapes, disposal, new, walk to Northrop \$115 up. OS 5-6032. E

APT, 1-bdrm., custom decorated, subterranean parking, pvt. decks & pool \$125. 373-1143. E

STUDIO APT, 2, 3, 4-bdrm., 1 1/2 baths, all built-ins, carpets, drapes, sundeck. \$139 up. AX 3-0142. E

APT, 1-bdrm., new carpets, drapes, stove, refrigerator, 1 block from beach, garage, no pets, couples over 40 preferred, \$110 mo. FR 9-9570. E

APT, 2-bdrm., unfurn., carpeting, drapes, garage disposal, built-ins, carpet, laundry facilities, small patio, \$115 mo. OS 5-5898 after 4:30 p.m. E

APT, new, deluxe, 3-bdrm., 1 1/2 baths, built-ins, fireplace, w/w carpets, drapes, lae. patio & pvt. garage, near Northrop, children ok, \$155. OS 5-7938. E

APTS, deluxe, 2-bdrm., furn. & unfurn., lae. pool & patio, built-ins, carpets, drapes, closed aaraes, near El Camino Col., \$115 mo. up. DA 9-5986, DA 3-1946 after 4:30 p.m. E

APT, unfurn., deluxe, 2-bdrm., Nylon carpets, drapes, built-ins, patio, closed aarae, near Crenshaw & Torrance Blvds., \$125 mo. DA 0-4058, FR 5-0867. E

CHILD CARE WANTED

BABYSITTER, mature, my home, 2 children, 11 mos. & 3 yrs., no housework, Hawthorne Blvd. & W. 137th St. vicinity, own transportation, references. 675-6784 after 5:30 p.m. H

PERSONAL

WRITTEN WORDS are inadequate to express how much we appreciate your sympathetic understanding of the great loss of our husband & father. The beautiful flowers from our many friends at Northrop were received as a token of love & friendship. MRS. ARNOLD SMITH, MR. & MRS. BERNARD SMITH & FAMILY. L

A & E Flying Club has openinas for new members. For information call 324-2992 eveninas. L

FOR SALE OR TRADE

PLYMOUTH station wagon, 1957, V-8, r/h, \$315 or trade for 4-dr. sedan of equal value. 944-3123. M

HOUSE, 2-bdrm., 1-bath, \$16,500, bal. on GI, \$14,800 or trade equity for 8'x35' to 40' house trailer. 675-8598. M

ENLARGER, w/double condensers, OMEGA B-22, w/2 1/4 x 2 1/4, 127, 35mm, & 16mm glassless negative carriers, \$85 or trade for gas power edaer as part payment. 329-9418. M

New Balanced Dockboards Help Norair Safety Program

Norair Transportation people no longer need worry about the pesky fact that practically every truck made by man has a bed of a different height.

The problem used to be—when getting ready to load or unload—will the truck fit the dock and vice versa? No more. And the plant forges steadily ahead in the "Blue Ribbon" safety drive for 1964. Cost improvement also gains.

"Hi-Lo" adjustable steel dockboards with "Adjust-A-Lip" have been installed in the Plant 4 Norair terminal. Now whatever the elevation of the truck bed, Transportation men, by the simple process of pulling a control cable can raise or lower the ramp to fit it.

Manufactured by Kelley Company, Inc. of Milwaukee, Wisconsin, the dockboards work on a counterbalance system. No hydraulics, no electrics.

The hinged lip feature plus the happy fact that the old time heavy steel plate is supplanted, make the new dockboards extremely safe.

No lifting to place, no shifting under heavy loads.

Ease of installation is another attractive feature that scores for Facilities and Plant Engineering because all that is needed is a shallow pit in the edge of the warehouse floor plus an incline to back the truck down into. This

M-C OFFICER INSTALLATION NEXT MEETING

The Northrop Norair Management Club will install 1964-65 officers headed by Leo Sacks, president, and new members of the board of control at the next dinner meeting to be held April 3 at the Airport Marina Hotel.

Entertainment feature for the evening will be "build a band" in which professional entertainers will create a band wagon with assistance from the audience.

There will be a mug-of-the-month presentation.

Door prizes, raffle prizes, and two shares of Northrop stock await some lucky members.

Welcome hour starts at 5 p.m.

terminal another warehouse and Such buildings can now be built at ground grade instead of expensively bringing in fill dirt to raise floors up to truck bed level.

Some of the Hi-Lo features:

No attendant necessary for safe-spotting; maintenance can be done with standard tools and know-how; a truck backing or leaving can not inadvertently cause the board to go up or down endangering men and material; truck waiting time is reduced to a minimum; loading or unloading time is reduced as much as 50 per cent; pallet jacks and fork trucks operate with speed and safety; both highway vehicles and plant service transport can now load or unload very heavy items such as ground power equipment, forklifts, automobiles and light trucks with ease.

NRC CAMPERS PLAN OUTING AT LAKE CACHUMA

The NRC Camping Club, Max Douglas, commissioner, announces a Saturday and Sunday campout, April 25 and 26, to be held at Lake Cachuma up Santa Barbara way.

The Club has reserved organizational camping area #1 where the fee will be \$1 a car for each night plus another \$1 for each day, payable at the entrance gate upon entering the park.

Although fishing and boating are favorite pastimes at Lake Cachuma, no wading, swimming or water skiing is permitted, it being a domestic water supply reservoir. Campers are urged to observe all regulations.

Wading and swimming is permissible below the dam, however, states Max.

A potluck dinner will be held at 4 p.m. on Saturday and those who intend to partake are asked to bring their favorite "mulligan" and enjoy the fare.

A movie will be shown Saturday night.

The next regular meeting of the Camping Club will be held Wednesday, May 6 at the Clubhouse.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

• Wednesday, April 8, 1964

HAWTHORNE

PALMDALE

EDWARDS AFB

SAN ANTONIO

SUGGESTION BRINGS \$1007



DISTINGUISHED VISITORS—Thomas V. Jones, Northrop president and chairman, extends welcome to Lt. General H. M. Estes, jr., vice-commander, Headquarters, Air Force Systems Command, center; and Dr. Leon Green, jr., scientific director, Research and Technology Division, at right, here for a two-day review of Company technology. At left is Dr. Werner Pfenninger, director, Boundary Layer Research. Over 50 Air Force officials attended briefings on Northrop products, saw R&D firsthand, and toured science laboratories for lectures and working demonstrations. Norair, Nortronics, Ventura and NSL participated.

Air Force Officials Here For Technology Review

Northrop Corporation was host last week to 55 officers and civilians representing Air Force research and development management, here for a two-day review of Company technology.

Stressing up-to-the-minute communications of progress being made by Northrop's diversified aerospace programs, the prime objective of the review was to seek optimum management direction in terms of work being done and utility and suitability of the end product.

The meeting was led by Dick Horner, general manager, Norair Division and Northrop Space Laboratories.

The major portion of the review was held at the NSL facility. Programs and products from all aerospace segments of the Company were presented — Norair, NSL, Nortronics, and Ventura.

Lt. General H. M. Estes, jr., vice-commander, Headquarters, Air Force Systems Command, was the senior officer present from the Air Force. He was accompanied by Major General M. C. Demler, commander, Research and Technology Division; and Brig. General E. A. Pinson, deputy commander, Office of Aerospace Research, together with other senior officers and key civilians in A-F research and development effort.

Northrop top officials taking

part in addition to Mr. Horner included Thomas V. Jones, Corporation president and chairman; Robert R. Miller, Corporate senior vice-president, Administration; Corporation Vice-presidents Ward Dennis — Development Planning; John Alison — Customer Relations; Glenn Lord — Marketing; and S. W. Towle, jr., — Eastern Regional office, Washington, D.C. They were supported by teams of management and scientific personnel from all phases of Company activity under discussion.

Specific areas that were reviewed, including tours to the working laboratories with on-the-spot presentations and question and answer sessions were:

Man in the Space Environment

—Dr. J. G. Gaume, NSL.

Radiation Biology — Dr.

R. G. Lindberg, NSL.

Thermal Control in Space Suits—Dr. Gaume.

Body Support and Restraint

—Dr. C. F. Lombard, NSL.

Radiation Effects—Dr. S. H.

Levine, NSL.

Hardened Electronics — Dr.

D. A. Hicks, Ventura.

Radiation Hazards and Protection—Dr. Levine.

Radiation Monitors — R. E.

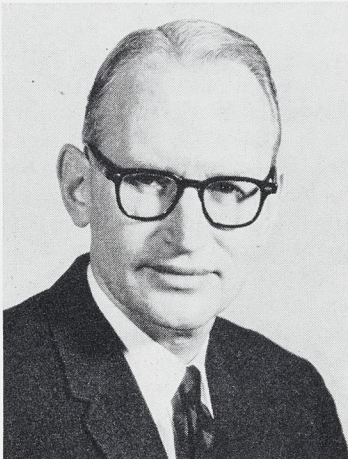
Miller, Nortronics.

(Continued on Page 2)

F-5 Static Series End On Schedule

Static tests on the F-5A wing and the F-5B fuselage are now complete, it has been announced by W. E. Woolwine, T-38/F-5 Program manager.

Mr. Woolwine said the work was completed exactly on schedule and with cost actuals below



W. E. WOOLWINE

allocated budgets. He complimented personnel in Engineering Laboratories, Structures and Mechanical Systems, and the Test section for their achievement in efficiently attaining this newest F-5 milestone.

Personnel who had key roles in the test success include: V. G. Cardoza, supervisor, Laboratory Test Programming. From Engineering (Continued on Page 2)

BOB YOUNG'S IDEA IMPROVES DRILL RECONDITIONING METHODS

R. E. "Bob" Young, Standard Tool Maintenance, has been presented with a Suggestion Award check for \$1007 for his idea that has quadrupled grinding room output in sharpening and split pointing drills on the Winslowmatic.

Northrop has applied for a patent on the device and a licensing agreement has been negotiated with Winslow Product Engineering Corporation for manufacturing and sales to industry.

Mr. Young received his check, the largest award paid so far in 1964, from Bob Lloyd, Division vice-president and assistant general manager-Operations last week. Also participating in the ceremony were A. S. Turner, chief, Tool Engineering; F. M. Griffin, foreman, Standard Tool

Maintenance; Ron Klein, general supervisor, Tool Control; and Sal Garguilo, supervisor, Standard Tool Planning.

Stated Mr. Lloyd, "Mr. Young has once again demonstrated that there is always a better way to get things done. He set out to improve drill reconditioning methods and he accomplished his goal in a brilliant and resourceful manner. Once perfected he presented his idea to the Suggestion Award committee, then continued in support through demonstrations, and refinement of invention details.

"His efforts have contributed greatly to Northrop's cost improvement program. Aside from handsome cash savings in the grinding room, Division inventory of new and used drills has been reduced, and substantial paperwork has been eliminated.

"Norair management congratulates Mr. Young for a fine productive idea."

Bob's \$1007 check is the largest award so far in 1964, surpassing one of \$749 earned in February by J. P. Hewes for savings on paperwork.

Two thousand-dollar plus awards were given in 1963. One for \$1958 to A. E. Shahan and E. R. Syme and another for \$1144 to Charles Hames.

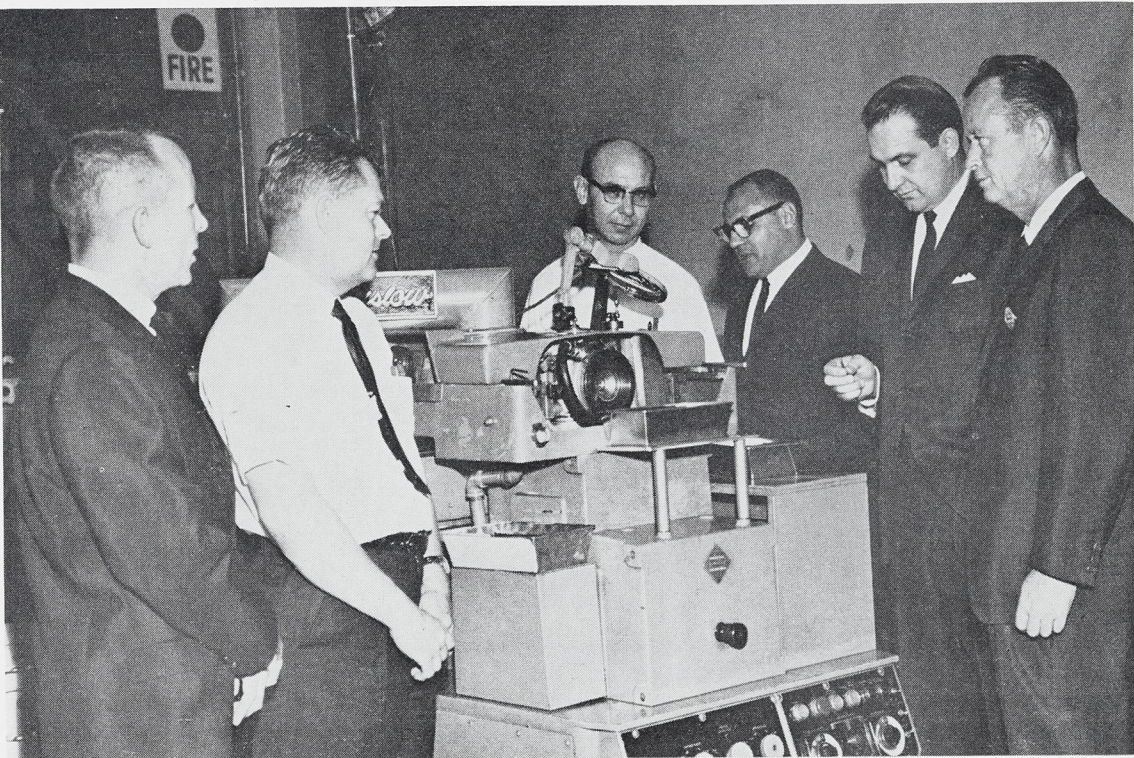
CREDIT UNION FORMS NOW IN SCIENCE CENTER

Norair people in the Science Center building who wish to join the Northrop Credit Union can obtain the necessary forms at Engineering Personnel, John Andre, general supervisor, Technical and Scientific Personnel.

Credit Union initiation fee is \$1 and minimum first deposit is \$5.

TOP SAFETY AWARDS

(Mariposa and Palmdale score high honors. Story, next issue.)



WORTH \$1007 VIA SUGGESTION AWARD—Norair Vice-president and Assistant General Manager Bob Lloyd, right, observes new method for drill sharpening and point splitting suggested by R. B. "Bob" Young, Standard Tool Maintenance, second left. Idea brought Suggestion Award check for \$1007. Adding their congratulations from left are A. S. Turner, chief, Tool Engineering; F. M. Griffin, foreman, Standard Tool Maintenance; Sal Garguilo, supervisor, Standard Tool Planning; and Ron Klein, general supervisor, Tool Control. (See story above for details.)

The Right Thing To Do

Progress Under Our Plan for Progress

When the late President Kennedy issued his Executive Order 10925 and subsequently Executive Order 11114, equal employment opportunity became not only an enlightened personnel practice but a contractual duty.

These Executive Orders presented no problem to Northrop management, as the philosophy of Equal Employment Opportunity is nothing new at Northrop; we have observed the principle in policy and practice for many years.

Under these orders all government contractors must comply with the rules established by the President's Committee on Equal Employment Opportunity. The rules require that contractors take affirmative action to insure

this youth motivation program.

The meetings which are held twice monthly include lectures, laboratory demonstrations, technical movies, and practical work projects.

This particular program has received enthusiastic personal support of our former Division General Manager Dick Nolan who has earned deserved recognition from our community leaders for his support of many varied youth activities. Our newly named general manager, Dick Horner, is likewise a strong supporter of this endeavor.

We are also currently participating in a series of discussions with the educators in the local high schools and junior colleges, exploring further ways and

By John B. Clark
Norair Director, Industrial Relations

that no applicant or employee is discriminated against because of race, creed, color, or national origin. Further, periodic reports must be filed indicating the numbers and types of jobs held by members of the minority races.



Not content with the fulfillment only of our contractual responsibilities, Northrop Corporation President Tom Jones signed a "Plan for Progress" in September 1961, presenting this document to the then Vice-president Lyndon B. Johnson. Both Mr. Johnson's and Mr. Jones' signatures are on this document. Northrop's Plan for Progress represents our Company's voluntary effort beyond contractual commitments to enhance the effectiveness of the President's orders on nondiscrimination and fair employment practices.

We are pleased to report real progress under our plan and consider it timely that we advise the personnel of a few of our voluntary efforts in the program, realizing that the ultimate success of our efforts can only be accomplished with the full and sincere cooperation of every man and woman in the company.

An important undertaking in the program which has proven successful is the Norair special interest Aerospace Science and Management Explorer Posts (Boy Scouts of America).

We are proud to report that 57 students are now participating in

means whereby our industry might assist the school authorities in establishing hope and confidence among our young people that equal employment opportunity is theirs for the asking—that it has become our industrial way of life. Our young people now attending schools will be our leaders of tomorrow. It is essential that they learn early in life that ability counts and adequate preparation for careers in industry is most essential. Then we must assure them that when they reach the stage of meriting employment they will not be hampered by discriminatory action, certainly not at Northrop.

Northrop's "Plan for Progress" represents a formalization of policies toward nondiscrimination which have been in effect at our Company for many years. We feel that the plan will carry forward these basic principles to achieve even greater safeguards for the equal opportunity rights of minority groups now employed.

We are indeed proud of the splendid contributions to the success of our Company now being accomplished by many members of minority groups now employed here. In an upcoming edition of the Northrop Norair News there will be published photographs of many of these fellow employees in their work areas here.

I think Tom Jones summed it up very well when he stated, "We are participating in this program not only because of contractual responsibilities but because it is the right thing to do."

Static Tests A-Okay

(Continued from Page 1)

neering Laboratories, S. D. Lew, supervisor, Structural Lab; D. C. Atmur, F-5A/B Structural Test Program engineer; M. A. Peckham, lead engineer, F-5A/B Fuselage Static Tests; W. W. Kelly, lead engineer, F-5A/B Wing Static Test; N. L. Kincaid, lead engineer, Instrumentation; G. F. Younkin, foreman, Lab Services; and E. W. Anderson, team leader, F-5A/B Static Test

Technical Support. From Structural Analysis branch, Stan Murnane, supervisor; Bill Hilker, coordinator; Vern Betz, lead engineer; Jack Kuster, lead engineer; and Larry Levau, F-5/M Stress.

Static tests on the F-5A gun nose configuration, started subsequent to the wing and fuselage program, are now under way and on schedule.

Technology Review

(Continued from Page 1)

Flight Dynamics—K. E. Van Every, Norair.

Hypersonics and Lifting Re-entry—Dr. L. R. Fowell, Norair.

Low Drag Boundary Layer Control—D. D. Warner, Norair.

Steerable Parachutes—T. W. Knacke, Ventura.

Physical Sciences—Dr. J. T. Thomas, NSL.

Plasma Dynamics and Diagnostics—Dr. H. N. Olsen, NSL.

Space Materials—Dr. R. D. Johnson, NSL.

Planetary Physics, Chemistry and Geology—Dr. Thomas.

Classified discussions were handled by:

NSL — Dr. B. L. Landrum, A. A. Shurkus, and Dr. R. S. Estey.

Nortronics — J. W. Koletty, N. P. Laverty, J. Radigan, E. L. Swainson, F. A. Fleck, R. E. Trainer, P. Kleyn, and P. A. Akin.

Serving as group leaders on visitor tours were Dr. Alex Weir and Bill Ellet, Corporate office; Al Bredahl and Hal Maninger, Norair; Walt Makush, Tom Pretorius, Ron Grogan, Gene Cornford, Bill Shea, and Lloyd Jensen, NSL; Bill Freeman, Ventura; Russ Bowditch, Bob Ringle, and Pat Minnich, Nortronics.

Following the formal part of the agenda, special in-depth presentations and demonstrations were provided on request for Air Force visitors in order that they might more closely study projects and system applications of the developments they had seen during the review.

MARQUARDT M-C MEN TO DINE, TOUR F-5/T-38

Northrop Norair Management Club will be host to Management Club members from Marquardt Corporation of Van Nuys, California for a visit to the T-38 and F-5 assembly lines and dinner on Wednesday, April 29.

Time of the affair is 6 p.m.

GET ICE SHOW PASTEBOARDS AT P-A OFFICE

Personnel Activities has made a special purchase of a block of 200 Ice Capades tickets for the premiere performance on opening night, it has been announced by Dick Pryor, general supervisor, Personnel Activities.

These tickets are regular \$3.50 loges. Special discount price to Northrop personnel is \$2.50.

The event will take place Tuesday evening, April 28 at 8 p.m. Location is the Los Angeles Sports Arena.

NORTHROP NORAIR NEWS

VOL. 22 NO. 4

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A NORTHROP CORPORATION PUBLICATION

NORAIR DIVISION

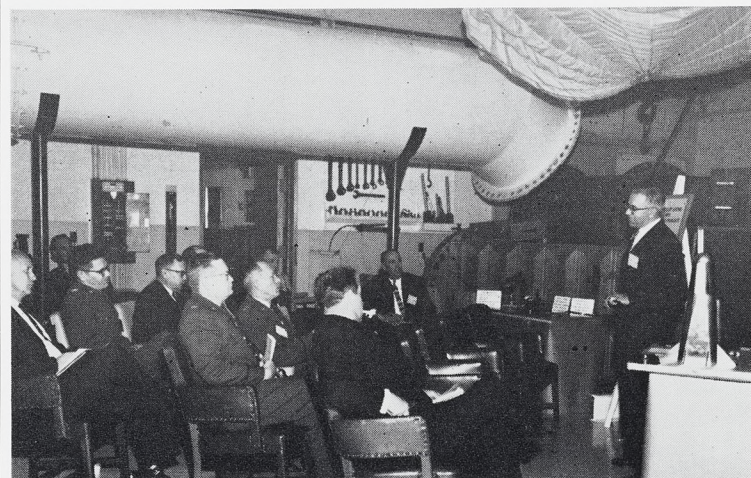
Published every other Wednesday

CHARLES BRADFORD, Editor

Permission to publish material with credit to Northrop Norair News will be granted. News office extension—2456. Outside lines—678-9111, OS 5-4611.



ZERO "G"—Here NSL's Dr. Thomas, at left, discusses Northrop's work in physical sciences relative to space. Specimens enclosed in special capsule are dropped in tower, foreground, to study behavior in weightless environment. Next to Dr. Thomas is Major General M. C. Demler, Headquarters, R&TD; Colonel R. D. Ragsdale, ESD; Lt. Colonel C. K. Reed, OSR; Colonel E. R. Feicht, Systems Engineering; Colonel F. A. Holm, Hdq. AFSC.



STEERABLE PARACHUTES—T. W. Knacke, Northrop Ventura, briefs visitors on Company research and development in recovery systems. Location is Norair's hypersonic wind tunnel. From left are Kirk Raynesford, STLO/R&TD; Colonel Feicht, R. J. Nordlund, A-F Avionics Lab; Colonel Holm, General Demler, Northrop Nortronics; Russ Bowditch, and NSL's Lloyd Jensen, background. Groups were kept small, 10 visitors each, for efficient communications and good Q&A sessions.



COFFEE BREAK—NSL's vice-president and assistant general manager, Roy Jackson, talks Northrop space progress with Brig. General E. A. Pinson, office of Aerospace Research, during coffee time. Air Force callers representing military R&D management were here for two days. Major portion of technology review was held at the NSL facility.



THE PLASMA LABORATORY—Intent on plasma dynamics demonstration as seen through generator inspection port are from left, Dr. Thomas, Northrop President Thomas V. Jones; A. A. Koepfer, Air Force Avionics Laboratory; Glenn Lord, Northrop Corporation vice-president, Marketing; General H. M. Estes, jr., vice-commander, Hdq., AFSC; and NSL's Dean Ward, research engineer.

NORAIR TOOL ENGINEERING SEES SAVINGS IN DRILL REMANUFACTURE

Norair Tool Control in concert with the Division's allout cost improvement program has launched a planned campaign to reduce expenditures for perishable standard tools. It has been announced by A. S. Turner, chief tool engineer.

Spearheaded by Ron Klein, general supervisor, Tool Control, the effort has excellent dollar savings potential for the remaining half of fiscal 1964.

With every avenue of cost improvement being explored, one item where immediate gains are likely is in a twist drill remanufacturing service.

(For details of a \$1000 suggestion award for drill sharpening, see page one.)

Norair spends approximately \$80,000 a year for twist drills. Of this amount, even after normal reconditioning, an estimated \$16,000 worth measured by replacement costs became scrap.

Upon investigation by Tool Control officials it was found that a ready capability for drill remanufacturing did not exist. Methods and specifications were then established and a local ven-

dor was selected who successfully undertook the program. Norair savings that will accrue are estimated at \$10,000 a year.

In analyzing the short life of end-mills on numerically controlled machines, it was found that remanufacturing will pay off here as well. Investigation and trial runs have shown that approximately 50 per cent of the original cost of the end-mill can be saved. Savings should amount to approximately \$8000 a year.

The welding of broken teeth on milling cutters and shell mills formerly considered scrap is another potential in Tool Control

for Tool Control personnel utilizing films, slides, lectures and technical publications. The first lecture was devoted to tap indoctrination and tap terminology, geometry, principal causes for tapping difficulties, care and use of taps. Training films from the Norton Company will be shown to the tool and cutter grinders. The films cover techniques in tool and cutter grinding, safety, and grinding wheel selection.

In addition to training programs, steps are being taken to upgrade the quality of perishable tools and a quality assurance program is now in effect in the Standard Tool Maintenance area.

Display boards have been set up to indoctrinate supervision and employees on the particulars of tool scrap generated by Norair Division. Lectures will be held at the displays to stress ways and means of eliminating factors which contribute to the generation of scrap tools.

Factors include:

Was the right tool used for the job?

Was the tool abused during use?

Was the tool improperly reconditioned?

Did a lack of quality result in poor life?

Was the tool modified by unauthorized personnel?

An additional move to increase tool cost awareness will take place this week when large mural-type photographs of the display boards will be posted strategically in the factory and other work areas.



A. S. TURNER—Chief tool engineer, launches tool cost improvement program based on communications, training, tool reconditioning, and better quality. At left is John Musulin.

NORAIR V-A MAN CHAIRMAN OF L.A. MEETING

Norair's Ken Davidson, staff assistant, Value Analysis, will be general chairman of the 1964 annual meeting of the Society of American Value Engineers, being held at the Ambassador Hotel, April 23-24.

Mr. Davidson is also chairman of the Los Angeles Chapter of the society and is past historian for the national organization.

Other Northrop people taking official part in the two-day session are R. J. Snider, Norair Division, and J. O. Billups of Nortronics. Both men are on the publicity committee.

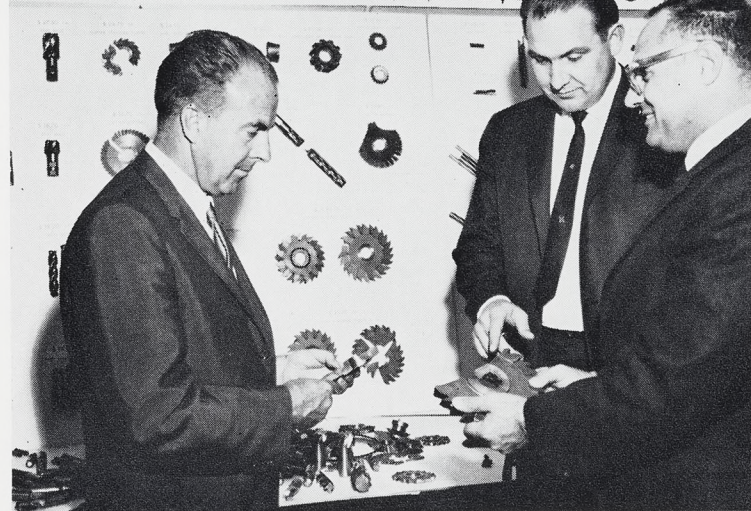
Highlights of the meeting will be the main banquet address given by Walter L. Lingle, jr., deputy associate administrator, NASA, Thursday evening. He will speak on NASA's Program for Cost Control and Cost Reduction. The awards luncheon will be held on Friday.

cost savings. Preliminary evaluation on actual production parts has resulted in cutter life equivalent to a new tool. Expected realization here is approximately 50 per cent of the original cost.

Plug gauge rebuilding, both cylindrical and thread, also promises worthwhile savings. When worn below limits they are now being chrome-plated and lapped to gauging tolerances. Potential is estimated at \$3200 a year.

A training program in cost improvement began in February

\$8,700.00 REPLACEMENT COST
AUG. 62 - DEC. 63 = \$1,100,000.00



\$\$\$ DISCUSSION—Graphic story of Division costs that stem from keeping tools sharp and in good order is told by this tool display board here being viewed by, from left, Jack Mannion, manager, Manufacturing and Material; Ron Klein, general supervisor, Tool Control; and Sal Garguilo, supervisor, Standard Tool Planning. Broken tools, many of which qualify for reconditioning or rebuilding, vary from 10¢ chip chaser to \$250 milling cutter.

Junior Achievement



TEN-YEAR SPONSORSHIP—Norair Division was recently honored by Junior Achievement for the Division's 10 uninterrupted years of J-A sponsorship. Diana Solomon, president of Norco, a Norair advised company, at a plant dinner meeting presents plaque so testifying. Accepting in behalf of the Company are John Breneman, manager, night Operations and Ed Laski, supervisor, Blueprint Control and last year's president of the Northrop Management Club. Norair has two J-A companies, Norco and Blinkko. Both produce same product, blinker signal for road hazards. Device is being used in Division shops.



J-A BUSINESS CONDITIONS—Tom Brazil, Norair J-A coordinator, addresses group on aims and objectives of free enterprise system during award dinner. In foreground, Division Junior Achievement advisors are, from left, Jack Miller and Jim Crase, Norco; Enoch Moreborn, Blinkko; and Mose DeMasters, Norco. Highly important part of Junior Achievement training is company management where young folk are taught about finance, stocks and bonds, fiscal reporting, budgets, and decision making.

NRC STAMP FOLK ISSUE CALL

The Northrop Stamp Club has purchased several beginners albums which have recently been placed in Children's Hospital.

Gus Morfis, director of the Club's assistance program, requests that all employees mail their used stamps to the Stamp Club, Personnel Activities, Plant One.

POLLARD MADE MEMBERSHIP HEAD FOR AAS

Frank Pollard, acting chief, Proposals group, has been appointed Membership chairman of the American Astronautical Society for the Inglewood and southern area.

The American Astronautical Society, incorporated in 1954, is dedicated solely to advancement of the astronautical sciences. The scope of the Society must necessarily be broad, and includes all phases of rocket and missile engineering, atomic energy for propulsion, space medicine, solar and cosmic ray physics, upper atmosphere physics, thermodynamics, metallurgy, celestial mechanics, astronavigation, aerodynamics, telemetering, propellant chemistry and planetary biochemistry.

The aims of the Society are to encourage research in those fields relating to astronautics and to propagate through its official publications and meetings knowledge of current advances.

Inquiries regarding membership should be directed to Mr. Pollard, extension 2473.



ON THE LINE—Tour which followed dinner meeting took Junior Achievement boys and girls out to the T-38/F-5 twin overhead rail assembly lines where they saw aerospace manufacturing in progress. The group was also shown a safety film.

GOING MY WAY?



RIDES WANTED

7 a.m. — 3:45 p.m.

ARBOR VITAE OR FREEMAN & INGLEWOOD, Inglewood. Larry Slininger, ext. 2565.

IMPERIAL & FIRESTONE, Norwalk. Ernest Romero, ext. 2200, UN 8-1293.

7:30 a.m. — 4:15 p.m.

HAWTHORNE & GRAND, Palos Verdes. Frank L. Harris, ext. 1937, 377-4489.

PACIFIC COAST HWY. & PASEO DE DELICIOUS, Redondo Beach. Barbara Boyd, ext. 1581, 329-2628.

SEPULVEDA & CULVER BLVD., Culver City. E. D. Peden, ext. 4284, EX 1-7014.

8 a.m. — 4:45 p.m.

NORMANDIE & 134TH, Gardena. Norma Gallagher, ext. 2311, DA 7-9518.

OHIO & E. 7TH ST., Lona Beach. George Psaros, ext. 1348, 433-5512.

MARGO & E. 6TH ST., Lona Beach. Kenneth H. Roars, ext. 512, 431-7658.

RIDES OFFERED

7 a.m. — 3:45 p.m.

LAKEWOOD & IMPERIAL, Downey. Stan Arrowsmith, ext. 2242, TO 9-4813.

8 a.m. — 4:45 p.m.

OHIO & E. 7TH ST., Lona Beach. George Psaros, ext. 1348, 433-5512.

MARGO & E. 6TH ST., Lona Beach. Kenneth H. Roars, ext. 512, 431-7658.

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

CHAIRS, 2 Italian provincial, \$147 ea.; table, walnut, seats 11, \$150; cocktail tables, 3, glass top, \$60; sectional, 2-pc., 10' long, \$350. 347-4160.

FORD, 1952 4-dr., r/h, auto. trans., \$125; tent w/extra room & awning, 3 windows & floor, \$35. DA 3-3251.

PLYMOUTH, 1959 station wagon, 2-dr., good tires, new clutch, points, \$300. NE 2-6738.

HUDSON, 1951 4-dr. sedan, \$35. OR 2-8629.

REFRIGERATOR, \$30; trailer hitch, 1957-1959 hvy-duty, \$7; coil springs, hvy-duty, \$3. 457-2979.

FORD Fairlane, 1960, 6-cyl., \$1150 or offer. OS 6-7328.

VAUXHALL, 1959, 25-30 mpa. good tires, new battery, \$400. 371-5910.

HORSES, registered 4-yr-old sorrell quarter & registered 10-yr-old bay Arabian gelding, sound, \$1000 for both, PL 4-8230.

WEDDING DRESS, size 10, ivory satin & tulle, \$50. TE 1-2654.

MICROSCOPE, 900X, complete kit & carrying case, \$30; lawn edger, hand-type, \$2; tire chains, Sears, 6,700-15 to 7,500-15, \$6; TV, 21", Sears, \$20. 675-8262.

OVEN, built-in, & cook top, O'Keefe & Merritt, signal-timer clock, lift-off doors, glass control panel, oven light, \$186.95. FR 4-8757.

PIANO, parlor grand, Kranich, carved burl walnut, provincial style, \$800. OR 0-0854.

GOLF CLUBS, Wilson, \$40. 378-4098 after 5:30 p.m.

FORD, 1956, 6-cyl., stick, \$295; HO train, layout & table, \$35 or make offer. Box 401.

AD, RIDE FORMS

Going My Way and BBSF forms are available from Company stockrooms.

Going My Way is Form 59-228. BBSF is Form 59-308.

FOR SALE

COUCHES & PADS, 2, foam rubber lounge-type, newly covered w/Nauqua-hyde, pillows & pads zippered, \$40 ea. set or both sets, \$75. DA 3-5740. A

PORSCHE coupe, 1957, 1600 normal, radio \$1500. DA 6-0895. A

MOTORCYCLES, 1952 Parrila, 250 cc, \$450; 1956 Villiers, 200 cc, \$125; rifle, M1917 Enfield, 30'06, Bishop stock, 4-power scope, \$70. NE 2-7610. A

HOME, Hollywood Riviera, 2200 sq. ft., 4-bdrm., 2-bath, red carpet, \$39,500. FR 8-1735 eveninas. A

HOUSE, 3-bdrm., 2-bath, walled yard, deluxe features, unfurn., \$24,950; furn., \$26,950. FA 0-2393. A

BUICK, 1953 sport coupe, new battery, \$150. FR 7-6458. A

VOLKSWAGEN, 1963, r/h, w/s/w, 13,000 miles, \$1750. PL 0-2079 after 4:30 weekdays. A

TENT, canvas, 10' square, \$36. Box 402. A

RAMBLER American, 1962, 1-owner, 4-dr. sedan, auto. trans., r/h, 4 new w/s/w & brakes, \$1175. OS 5-6831, OS 6-3293. A

GAME TABLE CHAIRS, 4, white Vinyl & walnut w/large brass casters, 10-mos-old, \$150; maternity wardrobe from Sak's, size 10, \$25; bassinet, old-fashioned white wicker, \$15. 833-8238. A

TRIUMPH Tiger Cub, 1959 leftover, 200 cc, full lightina, 2700 actual miles, \$350. DA 9-4855. A

CHEVROLET, 1957 station wagon, V-8 engine, auto. trans., new tires, \$150 for equity & take over \$48 pymt., bal., \$493. NE 5-9944. A

WASHER-DRYER COMB., Bendix, gas, \$125; air compressor, complete w/spray gun, \$50. FR 8-3990. A

PONTIAC Bonneville, 1960, convert., r/h, full power, w/s/w, \$1850. FR 4-5739 after 5:30 p.m. A

CHEVROLET, 1957 V-8 wagon, chrome wheels, dual exhaust, \$250 dn., \$600. OR 0-2098. A

CHINA, Easterlina, damask pattern, 4 5-pc. place settings, creamer & sugar, large bowl & platter, open stock, \$150. EA 2-0678. A

LAWNMOWER, 22", 3.5-hp rotary, used 2 seasons, \$35; croquet set, \$5. 377-5866. A

COKE MACHINE, \$65; Honda 50, 1962, w/rebuilt motor, \$175; diesel motor, 4-cyle, \$550; Harley, 1951, w/access., \$400; posture rest, \$15; table & 5 chairs w/2 bar stools, \$100. 379-4387, 371-4247. A

PIANO, upright, walnut, \$200. OS 6-6592. A

MYNAB BIRD w/cage & stand, talks & whistles, \$50 or best offer. PL 5-3101 after 5 p.m. A

FORD, 1953 V-8, 4-dr., \$125. 371-7281, after 5 p.m. A

BOSTON TERRIERS, toy-type, 3 male, 4-wks-old, AKC regist. w/papers, \$110 ea. 754-0533. A

SHOE SKATES, women's, size 6 1/2, toe stops, white, Chicago custom, \$15. 320-4992. A

AUTO HEADRESTS, \$7.50; backup light, Volkswagen, \$7.50; rear bumper, Volkswagen, \$13. 933-1964. A

FREEZER, upright, Marquette, 20 cu. ft., \$175. 371-5391. A

BED-DIVAN, rose-colored, modern, \$49.50. DA 6-4379 after 4:30 p.m. A

VOLKSWAGEN, 1957, 9-pass. station wagon, deluxe, 1-owner, new tires, 45,000 miles, \$650. EA 2-0923 after 5 p.m. or weekends. A

ACCORDION, Universal, 120-bass, 3-switch w/carrying case, \$100 or best offer. 674-1847. A

DOOR, walnut, 7'x3', solid core w/moldings, \$50. TE 3-2512. A

BOAT, 15', fishing-type, small open cabin, 30-hp Johnson, trailer, life preservers, \$350; slide projector, Kodak auto., 35mm, 3-yr-old, \$50. 371-9730. A

DESK & CHAIR, maple, \$40; twin beds, 2, \$50; dining set w/buffet, French provincial, \$90; couch, custom-tufted, \$50; headboard, king-size & 2 night stands, \$25; table, 6 chairs, walnut, \$60; wedding dress & veil, size 10-12, \$35; suits, ladies' size 12, \$10 ea.; cocktail dresses, \$5 & \$10; bedspreads, twin, quilted, \$10 ea.; mirror, \$8. EM 2-9380. A

SPEED BOAT, 18' Mercury, 320 Oldsmobile eng., low hours, tandem trailer w/new tires & spare, \$3000 or best offer. 379-4314. A

FIELD GLASSES, 6x42, leather case, \$32; wristwatch, man's, 21-J, \$25; ship model, square rigger, \$45; table lamps, pr., \$18. 676-5253. A

HOUSEHOLD FURNISHINGS, bedroom sets, 2, 3-pc., cherry, modern-style, \$150; maple, \$50; bed & springs, single, \$15; rug, 9'x12', braided, \$20; headboard & frame, birch, \$40. 675-6721 after 5 p.m. A

BICYCLE, 27" Derailleur, blue & gold, 10-spd., \$75; model airplane, Mustang, Mermac eng., battery, cables & flying cord, \$12 or best offer. 772-3948. A

TV, 21" Silvertone, blonde console, new tubes, \$70. AX 1-4304. A

Trophy Time for NRC Anglers



AWARDS NIGHT FOR NRC FISHERMEN — Trophy presentations for 1963 were made at the recent annual awards night dinner held by the NRC Surf Fishing Club. Shown in photo proudly displaying handsome mantel decorations for their record catches during the year are, from left, front, John Pawlicki, commissioner; Sammy D'Angelo, Chuck Mungarro, Peter N. Bakuses, Clifford I. Fiers, Debra Jane McCluskey, Mike Blyleven, and Wesley Blyleven. From left, back row, Sandra D'Angelo, John A. Cote, W. D. Taccuard, Ruth McCluskey, W. F. McCluskey, Mary Paddock, Dolores Hulsey, and Lucy Uribe. Awards were given for fresh water, deep sea and surf.

"Operation Scoutflight" Proves to be Good Deed

"Operation Scoutflight" took more than 225 people into the air Saturday (April 4) from International Airport in a series of short prop jet airplane flights over the Los Angeles area.

The purpose of "Scoutflight" was to raise money for this area's scouting program.

Centinela District chairman is Thomas L. McCarthy, manager

of Administration for Northrop Norair.

Passengers were treated to an airview of Catalina Island, San Fernando Valley and Los Angeles.

J. Floyd Andrews, president of Pacific Southwest Airlines, donated the use of one of his company's 98-seat Electra-jets for "Scoutflight." He was aboard each flight.

A highlight of each flight was a pass over the Los Angeles Coliseum. Displayed in huge letters across the floor of the stadium was the message, "Land of Uncle Sam," which referred to the Los Angeles Council's giant cavalcade of America's heritage to be held June 13 this year.

Providing description of scouting goals and objectives during the flights were Arnold C. Sorenson, Los Angeles Area Council Scout executive and D. Loring Marlett, Council president and a vice-president of Great Lakes Carbon Corporation.

SOMETHING NEW ADDED TO NRC TWILIGHT GOLF

NRC Golf Club's twilight league, 1964 edition, due to get under way shortly after daylight saving starts has added something new.

Likelihood is that this year there will be two short courses included, Alondra and Rolling Hills.

And this brings up the real news. Girls will participate!

Tom Williams, Golf Club commissioner, asks that women golfers find a partner and sign up for the mixed league immediately.

For additional information contact Tom White, Personnel Activities, extension 2784.

FISH DERBY SET FOR SATURDAY, PRIZES OFFERED

The NRC Deep Sea Anglers, Rosalie Peterson, commissioner, announces a deep sea derby for Saturday, April 11 with weigh in stations at Norm's Landing Tackle Shop, San Pedro and Red's Tackle Shop, Redondo Beach boat hoist.

Sign out time is 5 a.m. or later. Sign in time is 2:30 p.m.

There will be prizes for at least three largest fish, says Rosalie. The more people, the more prizes.

Entry fee is \$1 a person at Personnel Activities.

The Anglers have also scheduled their next meeting for April 21 at the NRC Clubhouse, 7:30 p.m.

There will be movies, fishing reports and other information. Door prizes and refreshments.

WANTED TO BUY

RENAULT, 1961-1959, good condition. 377-4489. B

BASEBALL EQUIPMENT, catcher's glove, used, but in good condition. AX 2-4958. B

MANUAL, 1963 Motor's Auto Repair, covering 1955-1963 models. 378-6655. B

SWING SET, child's w/glider & old-fashioned lawn swings. 675-6784 after 5:30 p.m. B

RENTALS OFFERED

APTS, new 2-bdrm., 1 or 2-bath, all elec., built-ins, carpets, drapes, aarage, radiant heat, Pacific Estates, 11 blocks from King Harbor, \$125 mo. PL 7-4403. E

DUPLEX, new 2-bdrm., attached aarage, built-ins, carpets & drapes, \$130 mo. OS 1-3911. E

APT, 1-bdrm., unfurn., redecorated, carpet, 1 child ok, no pets, near Northrop, \$80 mo. OS 9-1851 after 4 p.m. E

APT, 2-bdrm., extra large, drapes, carpets, built-ins laundry room, near schools & Northrop, \$115 up. OS 5-6032. E

APT, new, 1 & 2-bdrm., built-ins, drapes, carpets, closed aarage, pvt. patio, sun-deck, 3/4-bath, Torrance area, \$110 & \$145. 371-8176. E

HOME, 3-bdrm., 1-bath, dbl. aarage, disposal, unfurn., \$150. 327-8035. E

APT, new, deluxe, 3-bdrm., 1 1/2 baths, built-ins, fireplace, w/w carpets, drapes, lae. patio & pvt. aarage, near Northrop, children ok, \$155. OS 5-7938. E

APT, 1-bdrm., new, 1 mile to Northrop, single, furn., \$80; 1-bdrm., unfurn., \$80; furn., \$95. OS 5-9695. E

APT, unfurn., 1600 sq. ft., 2-bdrm., 2-bath, Inglewood, subterranean parking, all built-ins, \$225. 373-1143. E

APT, furn., lae., 2-bdrm., avail. April 25, all extras, closed aarage, pool & patio, \$135. DA 9-5986, DA 3-1946 after 4:30 p.m. E

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

• Wednesday, April 22, 1964

HAWTHORNE

PALMDALE

EDWARDS AFB

SAN ANTONIO

MORE NORAIR SAFETY AWARDS

Flight Test Center



AT EDWARDS—Dick Horner, Northrop senior vice-president, is brought up to date on Air Force Test Center activities by Colonel Donald P. Hall, commander. Mr. Horner, former Air Force under-secretary and Edwards technical director, looked up old friends on business visit to Northrop Norair facility there. Included was a conference with Paul F. Bikle, who heads NASA's Edwards Flight Research Center.

AIR FORCE PHOTO

Horner Appointed Head AIA Aerospace Council

Richard E. Horner, senior vice-president-Technical and general manager for Northrop Space Laboratories and Norair Division, has been named chairman of the Aerospace Industries Association's newly formed Aerospace Technical Council, it has been

announced by Karl G. Harr, AIA president.

The high-level group which is made up of ranking research and engineering officials of about 50 major aerospace companies had its organizational session in Washington.

Dr. Finn J. Larsen, corporate vice-president for Research and Development, Minneapolis-Honeywell Regulator Company's Military Products group was elected vice-chairman.

Other members of the ATC executive committee are from Beech Aircraft Corporation, The Garrett Corporation, General Electric, General Precision, Hughes, IBM, North American Aviation and Republic Aviation.

ATC has three major objectives.

1. Act as the industry's top-level advisory board on technical matters.

2. Concern itself with forward thinking and policy planning in technical areas.

3. Provide overall supervision and policy guidance for AIA's Technical service and the various AIA technical committees.

ATC's chief administrative officer in Washington is Samuel D. Daniels, director of AIA Technical service.

MARIPOSA, PALMDALE RECEIVE HIGHEST HONORS

Norair Division has been awarded two of the highest safety honors in the land by the Greater Los Angeles

Chapter of the National Safety Council.

The presentation took place at the business and industry awards dinner held at the Ambassador Hotel's Cocoanut Grove. The dinner was the 15th annual edition of what has become one of the most eagerly awaited events by safety minded industries in the west. The meeting was also the occasion of the 11th annual Western Safety Congress and Exhibit.

Over 726 companies participated representing a quarter of a million employees.

Materiel section, Mariposa, was awarded first place in the Wholesale Warehouse, and Storage section. Carl Hood is director of Materiel.

Palmdale's Base Administrator Tom McCracken, got a top award in the aircraft and missile service section of the Chapter's aerospace division.

Officially representing Northrop Corporation and Company President and Chairman of the board Thomas V. Jones, was William Larrabee, Corporate vice-president, Legal. Mr. Jones is a member of the board of directors for the Los Angeles Chapter.

The awards are particu-

larly significant in view of the all-out safety effort now under way throughout the Division to achieve "blue ribbon" honors for safe working conditions in 1964.

The drive was started late last year by Corporate Vice-president and former Division general manager, Dick Nolan, and is now continuing under the wholehearted approval and support of the new general manager, Dick Horner. Theme of the Norair drive is "Safety is Everybody's Business."

Emphasizing the aptness of the slogan, Mr. Hood stated that, "The Materiel showing is largely the work of the Warehouse Safety committee which has representation in all parts of the building and is doing yeoman service in building safety awareness by all individuals as the months go by. An important part in carrying the message are biweekly safety and good housekeeping surveys with grade points established for each organization. This in turn motivates supervision and their teams to make safety a foremost concern."

Members of Mr. Hood's survey team hail from Warehouse Operations, Quality Control, and

(Continued on Page 3)

Breakthrough In Zoom Lenses At Nortronics

An optical design breakthrough that makes it possible to produce high magnification zoom lens systems at greatly reduced costs has been revealed by Northrop Corp. scientist Glenn Wooters, who developed the mathematical formulas for the system at the

(Continued on Page 2)

Vance Scores Perfect Year For Air Safety

Randolph AFB, Texas. (AFNS) — An unequaled major-accident rate of zero has earned a flight safety award for the 3575th Undergraduate Pilot Training (UPT) Wing at Vance AFB, Okla. The Vance wing flew 91,979 hours during 1963 without a single major accident, a record unequaled by any other UPT base.

T-38 has a share in this record. Year of 1963 was phase-in time for the Talon at Vance.

LAMINAR FLOW CONTROL

Excellent progress has been made in recent test flights in the Air Force-Northrop Laminar Flow Control project at Edwards.

The addition of vertical slots in the wing leading edge has resulted in a steadily improved performance. Wind tunnel tests and additional flight testing scheduled in the coming weeks are expected to verify these results and to further advance the laminar flow performance.



THE BEST IN SAFETY—Proud moment at the Greater Los Angeles Chapter of the National Safety Council business and industry awards dinner was top honors to Norair Division's Carl Hood, director, Materiel, and Tom McCracken, Palmdale base administrator. Presentation was made by George C. Sopp, vice-president of the Council, at left. William Larrabee, Northrop Corporate vice-president, Legal, is at right. Mr. Larrabee officially represented Company president, Thomas V. Jones at the ceremonies. Mr. Jones is a member of the Chapter's board of directors.

DISNEYLAND

Page 4

Gentleman Courageous

Let us talk today about General John Alison. General Alison, as you know, is our Corporate Vice-president, Customer Relations and is justifiably recognized for his outstanding war service where his records of accomplishment have become legend. General Bob Scott in his book "God is My Co-Pilot" called Mr. Alison "a superior airman."

But, before embarking on his service statistics, I beg leave to voice a personal remark about one of the finest gentlemen I have ever known. It was my privilege to work under Mr. Alison's direction here at Norair when he was vice-president, Administration, during the years 1953-1955. Under his management Indus-

ing Japs, and Alison picked them up as they crossed the Siang River and headed out to maneuver for a bomb run. Alison pulled up to a point-blank range on the lead bomber when they turned into their run on the field. In following the bombers' turn, Alison came out slightly above them and was silhouetted in the bright moonlight. Rear gunner of one bomber opened up at almost point-blank range, spraying Alison's P-40 from prop to rudder. A tracer scorched Alison's arm, his prop was hit several times, a large hole was blown out of the crankcase, and the fuselage punctured a dozen times. With his plane a wreck, Alison never deviated from his objective. He poured a stream of fire into the lead bomber and saw it suddenly stream oil like a bleeding whale and pull up in a climbing turn. Alison moved over and gave the Jap wingman a burst

By John B. Clark
Norair Director, Industrial Relations

trial Relations brought about many substantial advancements in personnel-management relations and to have worked with John was our great privilege.

There have been rather remarkable stories of the feats which were accomplished in World War II by John Alison. It is with grateful acknowledgement to the publisher (G. P. Putnam's Sons, New York) of the book "Way of a Fighter" written by Major General Claire Lee Chennault, USA (Retired), that we reprint herewith the General's story of one of Mr. Alison's courageous exploits.

We quote from General Chennault:

"It was during those discouraging days that a stubby, sandy-haired second lieutenant named Johnny Alison flew a P-40 to Bolling Field in Washington for a demonstration before Chinese and American officials. Johnny Alison got more out of that P-40 than anybody I saw before or after. The Chinese were tremendously impressed.

"When he landed, they pointed at the P-40 and smiled, 'We need one hundred of these.'"

"No," I said, pointing to Alison, 'you need one hundred of these.'"

"Johnny Alison later came to China after teaching P-40 tricks to the RAF and the Russians. He ran up a brilliant combat record as a squadron leader, served as second in command of Colonel Phil Cochran's First Air Commando Unit, and as operations officer of the 700-plane Fifth Air Force in the Philippines and Okinawa . . .

"Alison was the kind of pilot I needed for the American Volunteer Group . . ."

Telling of the action, the general wrote:

"Night bombers appeared again on July 29, and this time 'Tex' Hill, 'Ajax' Baumler, and Johnny Alison were up in P-40's to meet them. By staying low they hoped to spot the bombers' blue-white exhausts as they approached the field. Ground radio gave them plots on the approach-

that blew him up in a swatch of orange flame. He damaged the third with a similar burst. By this time Alison's plane was about finished. Because we were so desperately short of spare parts, Johnny decided to ride it down for what salvage there might be rather than bail out while he had a chance. At 2000 feet the oil in his shattered crankcase caught fire.

"He was then too close to the field to make a landing, and the last anybody saw of Alison he was streaking across the field at 200 feet, heading for the river with his engine ablaze. Everybody assumed he could hardly survive the inevitable crash. Ajax Baumler finished off the third bomber and got the fourth north of Hengyang. When Tex Hill landed and learned that Alison was presumed to be dead he was furious. Tex's war was always a personal war, and he took the loss of a buddy extremely hard. When the Chinese net reported plots from the north early the next day, Tex led two P-40's into the air with a cold determination that boded ill for his opponents.

"Meanwhile, Alison had nursed his flaming P-40 to a crash landing in the river east of Hengyang. Johnny survived with a badly cut head to get the Distinguished Service Cross for his night's work. He had been taken to a missionary who sewed up his head and put him up for a rest. Johnny, very much alive, watched the next morning's flight from the mission compound as Tex flew out to avenge his 'death.'

"On August 5 the Japanese made their final assault with 30 Oscars, approaching Hengyang in a defensive Lufberry circle. The defensive nature of their formation was an incredible confession of defeat. We had only eight P-40's still fit for combat. Johnny Alison led them into the Japanese circle and broke it up shooting down four Oscars with the loss of Lieutenant Lee Minor.

"That performance ended the Japanese dream of wiping out the China Air Task Force."

Mr. Alison has been decorated

Zoom Lens

(Continued from Page 1)

company's Nortronics Division facility in Anaheim.

The advantage of the new optical system is that it has only one moving part.

While the lens produces ten-fold magnification, the new design approach makes possible production of zoom lens systems with one-hundred-fold or even one-thousand-fold magnification. Mr. Wooters said. He predicted military, space, and commercial applications for the new lens systems.

Citing several advantages for the new design, Mr. Wooters compared the one-moving-part feature to present roughly comparable systems which require complicated, expensive cam-and-pulley arrangements. Such systems also have mechanical compensation while Northrop uses optical compensation to provide better performance, including an image which is continually in focus during the zoom and which does not deteriorate as parts wear.

Northrop's new design approach produces a symmetrical system, yielding two additional advantages. Because the lens system is designed in two equal halves, design time is cut in half, saving time and money. And because the design problem is halved, systems with much greater magnification powers are now possible.

The zoom system Wooters demonstrated resembles a 31 inch long telescope. He said that—to his knowledge—it is both the world's first symmetrical zoom lens system and the first five-element zoom system.

Northrop Nortronics' Anaheim facility, the division's Systems Support Department, has designed, developed, and produced numerous military optical systems. The breakthrough in zoom lens design was made while working on advanced imagery interpretation systems.

DAYLIGHT TIME HERE APRIL 26

Daylight Saving is just around the corner—April 26. Clocks should be set forward one hour. The hour gain will stay in effect until October 25.

Daylight Saving is State law in California.

NORTHROP NORAIR NEWS

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A NORTHROP CORPORATION
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CHARLES BRADFORD, Editor

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with the U.S. Distinguished Service Cross, the British Distinguished Service Order, the U.S. Distinguished Flying Cross, the Silver Star and Purple Heart. He also holds the Legion of Merit and the Air Medal. Mr. Alison today is major general in the U.S. Air Force Reserve.

I consider that we are fortunate in having a man of John Alison's stature in our Company and this column is proud to salute him as a "gentleman courageous" in an important post at Northrop Corporation.



CONGRATULATIONS—Northrop Corporate Vice-president, and former Norair general manager, Dick Nolan, now assigned a new line position at Corporate headquarters, congratulates Major James Modisette, project officer, F-89 and F-101, Norton Directorate of Aerospace Safety, for near perfect safety record achieved by Scorpion airplanes with the Air National Guard. Mr. Nolan also presented the major with an inscribed plaque as a personal memento for his recent flight in the T-38.

Norair Airplanes Help A-F Write Safe Records

Northrop's Scorpion F-89 all-weather fighters added to their already long list of outstanding achievements in continental defense by racking up the best flight safety record ever achieved by any jet fighter in daily use in operational units.

The rate for 1963 was 2.2 per 100,000 hours, and for 11 months of the year the figure stood at 0.0! The single F-89 accident for the period occurred in December when it was thought by Air National Guard pilots who fly the F-89 that a perfect year was in the bag.

ANG units, particularly in the northern areas of the United States, have approximately 200 of the husky Scorpions flying in support of NORAD and Air Defense Command missions.

A highly significant factor that attributes to the F-89's record is that it is a two-engine airplane, Guard officials stated.

Safety is a characteristic of Northrop airplanes that the entire Division takes pride in. No less lustrous is the record of our supersonic T-38, also twin-engined, where it is contributing handsomely to the new safety marks being achieved by the Air Training Command. ATC reports only 2.5 accidents per 100,000 flying hours during 1963 in the undergraduate pilot training program. This is 11 per cent below the overall ATC rate and 13 per cent below the USAF rate.

At the same time, flight activity in the T-38 increased 161 per cent over the preceding year.

The F-89 Scorpion ANG units operate in geographical areas which are considered throughout the Air Force as of special consideration. In addition, units participate in the same alert activities as active units of the Air Defense Command—ANG men don't choose the weather conditions they fly in nor do they choose the time or the mission. Their operation is a direct parallel to active ADC units.

They not only operate their aircraft in a manner comparable to active Air Force units, but they do it safely under climatic conditions considered by flyers as the worst in the continental Uni-

ted States during much of the year. In racking up safety records with their Scorpions, ANG men ask no favors and take no back seats, not from any man.

Guard pilots, it should be remembered, take their turns of flight duty in addition to working a normal civilian work week to provide for their families.

New Edition Of Employees Handbook

The newest edition of Working with Northrop, the Company's official handbook for employees, will be distributed to all personnel on May 11, it has been announced by Dick Horner, general manager, Norair Division and Northrop Space Laboratories.

First copies off the press were issued to supervision last week with followup indoctrination and briefings conducted by Industrial Relations personnel.

As modern as the aerospace workers that it serves, the new Working with Northrop goes to a looseleaf format with provision for replacing pages as rules are changed or procedures updated.

There is space for other Company booklets, such as Suggestion Award, Retirement, and Group Insurance. However, these publications will continue in separate form until present stocks are exhausted. New editions as issued will have the looseleaf feature and will fit in the new binder.

The plastic cover is Northrop blue, the same shade as "Norair" is printed on the front page of this newspaper. Varicolored index tabs help locate the many subjects covered. Photographs of Company products and facilities are featured throughout.

An in-depth discussion of Working with Northrop and its importance to our everyday progress as a team will be published in the next issue of the News, May 6.

MORE NORAIR SAFETY AWARDS

(Continued from Page 1)

Production. They are all on supervisory level.

Mr. Hood further reports tops in relationship between Materiel and Facilities and Plant Engineering. Willard Lindstrand, chief.

Mr. Hood said, "Facilities and Plant Engineering has furnished us the basic needs for maintaining good housekeeping conditions which in turn provide the proper environment for good order and work arrangement. Such conditions must necessarily add to safety performance in any organization. In addition I consider this achievement particularly significant, because it includes transport personnel, most of whom were exposed to the hazards of driving approximately 1,000,000 miles in Greater Los Angeles traffic.

"We proudly accept this award and will display it prominently as a reminder to all personnel that our goal remains the same for '64."

Mr. McCracken, in listing his key points, said, "Safety and good safety records are an integral part of job security. This plant and our highly skilled personnel would be the first to feel the effects of anything less than an intelligent and aggressive safety program."

Mr. McCracken also declared that, "The Palmdale approach had a direct bearing on individual safety habits the sum total of which helped build the record for the award."

He said, "Safety is a top item called for by management in all staff meeting agendas attended by supervision." Mr. McCracken emphasized further that, "such awards cannot be won without eternal vigilance in eliminating

the cause of accidents."

He added a new note and one of high interest to President Johnson's nationwide cost reduction program. "Safe plants help maintain low cost operation," he said.

Additional factor recognized at Palmdale is that safety mindedness has not only protected life, limb, and machinery, but has contributed handsomely to the outstanding flying safety performance being achieved by the T-38 airplane in the Air Training Command.

Word has just come through via the Air Force News Service that Vance Air Force Base has achieved a perfect flying safety record with 91,979 flight hours during 1963. The T-38 is in service at Vance. See story, page one.

Norair Division has won many safety awards during the past years.

Included in the honors are a cherished fleet sweepstakes banner for the safest company driving in the aerospace industry for one year.

Eight "Certificates of Safety Achievement" have been awarded the Division by the U.S. Department of Labor. These are given to industrial plants that cut accident rates by 50 per cent, from one year to the next.

Division safety leadership was also recognized when the Northrop Norair News won national and California honors for a highway safe driving feature entitled "Courtesy Equals Safety." The story was later given a large share of credit for launching the "Courtesy is Contagious" campaign that helped stem the State's automobile accident rate.

The News' most recent safety award was granted in January

of this year with first place among Southern California industrial publications for telling the story of Division management support in the plant safety program.

Lee B. Johnson, Safety engineer, received the American Society of Safety Engineers J. Wesley Gebb Memorial Award for original research and perfection of a method of quenching magnesium fires. This commendation came during World War II and shortly after the "Cinderella" metal came into general use in aircraft construction. "Mag" has held no flash fire terrors for workers since that time.

Norair Division sent approximately 45 representatives from the various departments for the three-day series of industrial sessions. Contingent was led by John Breneman, manager, night Operations. Mr. Breneman is chairman of Norair's General Safety committee.

All those attending made idea and question check lists on topics they heard. This data is now being evaluated for use in the Division program.

Mr. Johnson was section chairman and moderator of the aerospace industries section meeting Tuesday, March 31. Panelists for the meeting were Colonel Willis H. Wood, chief, Industrial and Traffic branch, Directorate, Aerospace Safety and Lt. Colonel Frank G. Morong, chief, Safety and Security, Ballistics Systems Division, Headquarters, USAF, Norton Air Force Base.

Topic title was "What does the U.S. Government expect from aerospace contractors in the prevention of accidents and what are government agencies doing in supporting their own safety programs."

More than 5000 delegates attended.

There were over 70 sessions with safety subjects ranging from handling of propellant fuels to highway accidents and safety in the home.



MAKING PREPARATIONS—Northrop secretaries with important responsibilities in National Secretaries Week now under way are Virginia Kirk, chairman and secretary to Colonel Victor Cherbak, Corporate Development Planning staff, seated at right, and Pat Carlberg, committee member, secretary to Paul Wierk, director, Technical Administration, seated at left. Others in photo, both from North American, are Rubye Richey and Marge Gimlich, president of Airborne Chapter.

Secretaries' Week Now Underway in Southland

The part the secretarial profession takes in industry, education, government and the professions through the activities of 550 chapters in the National Secretaries Association (International) will become a well-publicized topic during the current Secretaries Week 1964—April 19 through 25.

Virginia Kirk, secretary to Colonel Victor Cherbak, Corporate Development Planning staff, is Secretaries Week chairman for the Airborne Chapter. Pat Carlberg, secretary to Paul Wierk, director, Technical Administration, is committee member.

Other Northrop Girl Fridays on the committee include Jeri Lippert, secretary to F.W. Lloyd, vice-president and assistant general manager-Operations; Mayme Colombo, secretary to Jack Man-

nion, manager, Manufacturing and Materiel; Marianne Weltman—Bob Gates, manager, Marketing; and Mattie Lee Sherburne—Robert Elder, director, Flight Operations.

A pre-secretaries week kickoff flight for secretaries and management was sponsored by United Airlines who took the opportunity to introduce their "one class" service designed with the "flying executive" in mind.

Secretaries day, today, Wednesday, will be celebrated with a special dinner at the Air Force Space Systems Division Officers' club.

As a wind-up of observance of this week, local secretaries have been invited to a luncheon on April 25, Saturday, at the Cockatoo Restaurant in Hawthorne.

Night, Day Summer Bowling Leagues Now Being Formed

Summer bowling leagues are now being formed, it has been announced by Bill Myerson and Vi Jennings, Bowling Club commissioners.

There will be several leagues to choose from. The list as it now stands is composed of:

Mixed 4 handicap, 630 maximum, Monday, May 4, Tropicana.

Men's 510 trio scratch, Tuesday, May 5, Tropicana.

Mixed 4 handicap, minimum 600—maximum 640, Wednesday, May 6, Missile.

Mixed 4 scratch, 615, Wednesday, May 6, Del Mar.

Mixed 4 handicap, 630 maximum, Thursday, May 7, Missile.

Mixed trio, 515 scratch, Thursday, May 7, Gardena.

Mixed 4 handicap, Thursday, May 7, Southwest.

The time of the start of all games is 6:15 p.m.

The night shift schedule will be the 485 mixed trio, Friday, May 15, 2 a.m., Southwest; mixed trio, maximum to be established, Saturday, May 16, 1:15 a.m., Tropicana, and mixed trio, beginners, Saturday, May 16, 1:30 a.m., Del Mar.

In addition to the above, beginners and experienced leagues are now being formed at the Hermosa Bowling Center, Artesia and Sepulveda, Tuesday, May 5 at 6:15 p.m.

The league fee is \$1.75. No

prize fund money involved. Trophies only.

Bowling instruction is also in the picture. Lessons are now being offered free on Mondays, Tuesdays, Wednesdays and Fridays at Hermosa at 6:15 p.m. for the remainder of the month of April.

For complete information call Personnel Activities, extension 2784.

NRC SPORTS CAR FOLK SPONSOR CHAMP RALLYE

The Northrop Recreation Sports Car Club will sponsor a championship rallye on April 25, it has been announced by Ed Myers, commissioner.

The affair will start at the Stonewood Shopping Center in Downey.

It is a tougher race this year, say Club officials, and the winning drivers will be called upon to exercise their last ounce of skill and cleverness in reaching the wire first.

There are 36 cars now entered from the Southern California area and indications are that this figure will rise to 50 cars by rallye day.

The area in which the rallye will take place is generally in Orange County and full time for the event will be approximately five hours.



GONE FISHING—Norair Research shop's J. E. Landry, a 22-year man, has called it a day and was promptly feted by fellow employees with a "rocking chair" cake and a real zingy wood shop router as going away gift. Extending very best wishes for happy days, front from left, Ralph Hayes, Frank Wiedenhofer, Charlie Chamberlain, Fred Molle, Tim Fletcher, Wally Henrich, Mr. Landry, Lynn Christensen, Carl Turner, Bob Mutch, Harold Larson, Chuck Sexton, Red Higgins, Ernest Vandal, Lee Boswell, Joe Stein, and Walter Eggleston. Mr. Landry had a hand in the development of virtually every project at Northrop through his efforts in mockup, models and display features. He worked on the Black Widow, the Scorpion, the Snark, the Talon, the F-5, plus some 200 smaller projects. Say the folk in the Research shop, "He was friendly, good natured and helpful and we will miss him."



7:30 a.m. — 4:15 p.m.

VALLEY DR. & GOULD LANE, Hermosa Beach. Betty Briags, ext. 4296, 324-3333.

8 a.m. — 4:45 p.m.

AVALON BLVD. & SEPULVEDA, Wilminaton, Violet Neuhooff, ext. 2753, TE 4-9576.

RIDES OFFERED

8 a.m. — 4:45 p.m.

OLYMPIC & BEVERLY GLEN TO SANTA MONICA & SAN DIEGO FWY., Los Angeles. R. E. Mathewson, ext. 2836, GR 7-9830.

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

BABY CARRIAGE, Storkline, \$5. 833-6053.

OLDSMOBILE, F-85, 1961 deluxe 4-dr. sedan, r/h, w/s/w, \$1300. 325-3859.

SLOOP, 26' Thunderbird, 1963, fully equipped, \$5900 or best offer. EX 1-1673.

PILOT'S LICENSE, private, \$130. 377-3810.

RANGE, Kenmore, aas, \$20. PL 7-2510.

FORD, 1956 station wagon, \$250; cash reaster, \$75. 376-8545 after 5 p.m.

CARBINE, U.S. cal. .30, Winchester, w/15 shot clip, \$50. 670-7388.

PUP, German shepherd, male, black, w/papers, \$85. OS 5-5234.

RUG, 9'x12', wool, beige embossed design, \$40; chair, platform rocker, green, \$20. 325-3865.

DINING TABLE, 6 chairs, walnut, \$10; divan, \$10; Rollaway bed, double, \$10; range, aas, 36", \$20; inside doors, \$2 ea. OS 6-7357.

MATCHLESS, 1959, 650-cc, \$600 or best offer; Chevrolet, 1954, rebuilt engine, \$300; outboard motor, Elgin, 7 1/2-hp, \$35; Hillman station wagon, 1955, \$75. OR 1-1660.

FIREPLACE LOG, aas, \$39; tea cart, \$8; desk, blonde, 3-dwr., \$17. ME 3-2395.

MERCEDES-BENZ, 1957, 180, 4-dr., new paint, seat covers, less than 35,000 mi., \$1550; table saw, 8" stand, power center, 2 blades & plates, \$80; refrigerator, 9 cu. ft. Servel, \$35. FR 9-1031.

MERCURY Montclair, 1957, convert., new top, r/h, p/steering & windows, eng. needs overhaul, \$300. HO 5-5703.

REFRIGERATOR, Westinhouse, 1-yr-old, auto. defrost, lae, freezer unit, \$150; mattress & springs, full-size, \$30. 391-6323.

DINING ROOM SET, solid birch, 6 captain's chairs, table, 54" round dropleaf, what-not chest, \$135; Stauffer machine w/timer, \$90. PL 6-7533.

TWIN BEDS, colonial, w/springs. Simmons mattresses, rose colored lined skirts, window valance, armchair, mahogany quilted, mirror & table, tilt-top, \$120; dishes, Desert Rose pattern, 4-pc. service for 8, plus many other pieces, \$15. FR 5-8938.

POOL TABLE, 7', all equipment, \$50. SP 2-1789.

BICYCLE, Schwinn Traveler, 3-spdl., stainless fenders, \$30; Go-Cart, Briags & Stratton 3-hp, 4-cylc, max. torque, aood slicks, \$65. OS 6-0049.

BEDROOM SET, Hollywood-type w/ dresser, \$25; freezer, 20 cu. ft., \$95. OS 5-6081 after 5 p.m. or weekends.

CHIFFOROBIE & crib w/mattress, Baby-line matching set, \$35. 833-7234.

AD, RIDE FORMS

Going My Way and BBSF forms are available from Company stockrooms.

Going My Way is Form 59-228. BBSF is Form 59-308.

FOR SALE

RANGE, O'Keefe & Merritt, 4-burner, lae, oven & broiler, timer, clock, ariddle, chrome top, storage drwr., \$75. PL 9-1741, PL 6-0830.

POWER MOWER, reel-type, \$25. DA 9-7447.

BEL AIR, 1956 4-dr. sedan, aood trans., \$375. FA 8-4188.

RAMBLER, Ambassador, 1962, air cond., all power, \$1995. DA 9-4576 after 5 p.m.

CHEVROLET, 1953 4-dr. sedan, new paint, floor shift, aood tires, \$150 or best offer; Plymouth, 1947 4-dr. sedan, stick shift, radio, \$55. FR 4-4836.

CHEVELLE, 1964, convert., V-8, 4-spdl., stick, tachometer, bucket seats, r/h, low mileage, \$800 equity & take over 32 payments of \$74.94. 427-8131.

WASHER-DRYER comb., Bendix, aas, \$125; air compressor, tank on wheels, hose & spray gun, \$60. FR 8-3990.

CAMERA, Beacon, small Brownie-type; tablecloth & napkins, Mexican, handwoven, \$4 ea. 477-5957.

HOUSE, 4-bdrm., 1 1/2-bath, dining room, family room built-in kitchen, landscaped, block wall, larae lot, covered patio, Garden Grove, \$24,950. 539-8792.

TRIUMPH, 1962 TR-3 roadster, 1-owner, approx. 12,000 miles, \$1750. TE 4-9205.

CHEVROLET Del Rey, 1958, auto, trans., 4-dr., r/h, \$750; cameras, 35mm w/f:2.8 lens, coupled range finders, leather cases, \$15; Wirgin Edixa, 35mm, f:2.8 lens, flash unit, \$30. DA 4-2160.

WATER HEATER, aas, 30-gal., \$20. FR 7-4770.

WALL TENT, 10'x20', 7' ridge, 5' at wall, 10'x12' main room, holds 4 cots, porch, 8'x10', fully screened, sew-in in floor, zipper storm flaps, poles & stakes, \$100. FR 1-3769.

WARDROBE CHEST, Babyline, white, \$20. FR 1-2669.

CHEVROLET, 1956 Bel Air, auto, trans., new paint, aood tires, r/h, 1-owner, \$595 or make offer. OS 6-3792.

CHEVROLET, 1956 Bel Air, 2-dr., h/top, V-8, fully equipped, 1-owner, \$600. 755-8879 after 6 p.m.

REFRIGERATOR, Norge, 12' 3", \$50; TV, 21" Capehart console, light oak, \$40. TE 2-1684.

FIREPLACE HEARTH STONE, onyx, 24"x 84"x1 1/2", \$65. TE 3-2512.

HOUSE, 3-bdrm., 4-mo.-old, w/w carpeting, drapes, built-ins, breakfast bar, landscaped, near Artesia & Sepulveda, \$19,950. 376-9704.

BUICK, 1955, very aood condition, \$225. FA 1-0020, DA 6-2601.

LAMPS, 2, \$10; record cabinet, \$20; guitar, \$15; dinette set, \$25; chest, hand-carved antique Chinese, \$125; coffee table, antique hand-carved Chinese, \$250; rug, 9'x12', \$10; round table, \$15. 672-2091.

REFRIGERATOR, Philco, freezer-top, 9 cu. ft., \$35. 838-4378.

BABY BED, \$10; twin stroller, \$12.50; playpen, \$12; range, Tappan, \$100; baby butler, \$5; bassinet, \$3; movie camera, Dejur, 8mm, light bar, \$35. DA 3-4116.

PONTIAC Catalina, 1962 2-dr. h/top, r/h, Ventura trim, w/w, p/s, p/b, automatic, \$2200. LU 3-5254.

ACREAGE, 20 acres in Antelope Valley near Willow Springs, \$395 an acre, terms; 10 acres near Rosamond, \$445 an acre, \$45 down, \$45 mo. on land contract. FR 8-1026.

DIAMOND RING, enagaement-type, excellent color & quality, .55 carat, \$250. GR 7-9830.

WATER SOFTENER, \$100; car radio w/ transmitter, \$100; meat slicer, elec., \$70. TE 4-9420.

STOVE, aas, \$20. AX 2-4958.

OLDSMOBILE, Cutlas, 1961, r/h, auto, trans., new tires, \$1850. FR 7-1687.

WASHER, Maytag auto., 1-yr-old, dryer, GE elec., both, \$185; refrigerator, GE, \$50; range, Western Holly w/oven, \$25; table, gray Formica top, 6 chairs, \$35; end tables, 2, mahogany, \$10; floor lamp, \$3; table lamp, \$1.50; twin bed, spring & mattress, \$5; dbl. bed, vanity, night stand, \$10; pressure cooker, \$5; lawnmower, reel-type, 14", \$15; boat, 15', 35-hp motor, \$350. OS 6-6360.

SOFA, 10' oyster white, modern, \$100; range, GE, push button, dbl. oven & broiler auto, controls, \$50. 831-9707.

CHEVROLET, 1956 1/2-ton pickup, V-8 Hydromatic, r/h, \$675. FR 7-2294.

LARK, 1960, 6-cyl., 4-dr. deluxe, auto, shift, low mileage, \$900. FA 1-3939.

SKIRTS for 1957 T-Bird, black, \$7.50. OS 6-6390.

SKI BOAT, Bristol, 14' Mercury 45-hp 400, trailer, \$800; freezer, 14 cu. ft. upright Gibson, \$95. FR 6-5051.

FORD Fairlane 500, 1957, auto, trans., p/steering & brakes, \$425. DA 9-9484.

RANGE, 36" Kenmore elec., \$15; refrigerator, apt-size Frigidaire, \$20. HE 5-2558.

MORGAN plus Four, 1958, orig. owner, \$1495. FR 9-1811.

HONDA 50, 1963, C110 sports 2300 actual miles, \$190. 714-892-3644.

FOR SALE

FIXTURES & tubes, fluorescent-type, 4', 2 tubes, \$10; 4', 4 tubes, \$15; 8' fixtures, \$20. OR 1-4046.

FLYING CLUB MEMBERSHIP, fly Bonanza equipment wet for \$11 hour, Flyers, Inc. based at Hawthorne Airport, \$450. 671-8347.

WANTED TO BUY

BELT SANDER, Skill #9, 371-6775.

POWER MOWER, small, rotary preferred. DA 4-8663.

CHEVROLET, 1961 or 1962 6-cyl. or 8-cyl., 2-dr. or 4-dr., with p/steering & auto. trans. 645-4260.

LAWN SWING & record player, Box 501.

CHAIN SAW, aas powered & AC generator w/out motor, 675-8598.

FREE (to be given away)

PUPPIES, Scotty & Yorkshire terrier, small dog when fully grown, 6-wks-old May 1. NE 5-4097 after 4:30 p.m.

RENTALS OFFERED

APT, unfurn., 2-bdrm., 2nd floor, aarage, water & trash paid adults, near Van Ness & 104 Sts., \$85 mo. PL 4-7911.

HOUSE, 2-bdrm., fenced yard service porch, tub enclosure, aarbage disposal, 2 miles from Northrop, \$110 mo. OS 6-7612.

APT, unfurn., 2-bdrm., 2 children ok, completely redecorated, water & trash paid, \$100 mo. OS 5-6285 after 4 p.m.

APT, in Inglewood, 1-bdrm., furn. or unfurn., carpets, drapes, air-conditioned, disposal, all elec., carport, laundry, patio, pool, \$115 up. OR 1-7086.

HOUSE, 2-bdrm., \$90 mo. Box 502.

APT, unfurn., 2-bdrm., 2 blocks to beach, ocean view, h/wood floors, aarage, utilities paid, \$160 on lease. FR 4-8757.

APTS, new 2-bdrm., 1 or 2-bath, all elec., built-ins, carpets, drapes, aarage, radiant heat, 11 blocks from King Harbor, \$125 mo. FR 4-4805.

APT, studio, 2-bdrm., 2 1/2-baths, 1400 sq. ft. in Inglewood, \$190 mo. 373-1143.

DUPEX, children & pets ok, 1 story, on bus line, range & refrigerator avail., fenced yard, \$70 mo. 679-8867.

APT, 2-bdrm., unfurn., w/w carpeting, modern, lae, closets, disposal, Palms area, no young children, 20 mins. from Northrop, 10 mins. from UCLA, \$125 mo. VE 8-5508.

BACHELOR COTTAGE, furn., 1 or 2 persons, \$15 wk. or \$60 mo. OS 6-8696.

APTS, 1-bdrm., new, carpets drapes, stove, refrigerator, aarage, adults only, no pets, \$110 mo. FR 9-9570.

SLEEPING ROOM, pvt. bath & entrance, furn., utilities paid, 1 mile from Northrop & near transp. \$45 mo. OS 6-7328.

APT, 1-bdrm., near Northrop & shopping center, new, 2 rooms & bath, furn. \$80; large 1-bdrm., unfurn., \$80; furn., \$95. OS 5-9695.

APTS, 2-bdrm., unfurn., newly decorated, fireplace, disposal, hwd. floors, service porch, laundry facilities, 10 min. to Northrop, close to freeways & shopping centers, \$95 mo.; 2-bdrm., unfurn., 1 1/2-bath, \$97.50 mo. PL 5-0630.

RENTALS WANTED

HOUSE, 3-bdrm., Manhattan Beach, \$115 mo. 941-5240.

PERSONALS

THE expressions of sympathy & understanding extended by my many friends at Northrop, Norair & Space Laboratories over the recent passing of my wife have been deeply appreciated. GORDON NELSON.

FLYING to Ohio July 3 to 13, riders to share expenses. Estimated round trip cost a person, \$100. 397-6326.

THANKS to the many friends of Carl Johnson who extended their sympathy to us in our hour of sorrow. MRS. CARL A. JOHNSON & DAUGHTER.

A GENTLEMAN identifying himself as a Northrop employee witnessed an accident at the intersection of Prairie Ave. & El Segundo Blvd. on morning of April 1. John Ashley, driver of the station wagon, would greatly appreciate being contacted at 329-1835.

FOR SALE OR TRADE

CRIB & mattress, \$15; playpen, \$5; transistor tape recorder, Hoffman, w/extra reels, \$22.50; tape recorder Webster, 2-spdl., 2-track table model w/mahogany cabinet, \$45 or trade for Wollensak or comparable portable. 330-3667.

FORD, 1960 2-dr. h/top, r/h, big engine, \$950 or trade for Volkswagon or other small car. OS 5-9230.



TIKI TALKER—Walt Disney gets a laugh out of the musical antics of Jose, one of 225 electronic birds, flowers and tiki statues which perform in Disneyland's newest major attraction, the Enchanted Tiki Room. Controlled by space-age electronic gear, the colorful performance is presented three times each hour in Adventureland. It is the result of more than 10 years' research by Walt Disney and his staff. Northrop Corporation people will see it all during NRC Nite at famous Disneyland. See story for ticket information.

A Disneyland Exclusive, Northrop Only, May 29

Circle Friday, May 29, on the calendar. That's the date of Northrop Recreation Club's "NRC Nite" at Disneyland.

For mom, dad, and the kids.

Special NRC Nite tickets are only \$3.75 a person . . . for everything. This includes all attractions—ride as many times as you want, dancing, the whole package. The Park will be reserved by the NRC for Northrop personnel and guests exclusively—from 7:30 p.m. until 12:30 a.m. The general public is not admitted.

Tickets are now available at Beverly Hills—Kay Cribbs; Ed-

NRC PLANS FOR SAILING CLUB ANNOUNCED

Do you like to sail? NRC announces that a Sailing Club exclusively for those who take their sea-going pleasures with canvas for power is being formed.

The membership drive and "quarter deck" meeting will be held on Tuesday, April 28, 7:30 p.m. at the NRC Clubhouse.

The wide variety of activities promised includes racing, cruising campouts, dances, Coast Guard instruction programs, you name it.

Steady as she goes, mate. Fair winds in the channel.

SQUARE DANCERS PROMISE CRAZY HAT CONTEST

NRC Square Dancing Club, Dick Heise, commissioner, announces a Crazy Hat dance, May 1 at 8 p.m.

All square dancers are welcome. Prize will be given for the craziest hat worn.

Caller will be Carl Nelson. Donation will be \$1.

NEXT BLOODBANK AT PRODUCT DISPLAY, MAY 20

The next Northrop blood bank is scheduled for Wednesday, May 20, it has been announced by Personnel Activities.

This is a day shift date and all donors are asked to register early. See organization clerks or call Personnel Activities, extension 2784.

The mobile unit will be at the Product Display Building from 7:30 to 11:30 a.m.

Transportation will be furnished with pickup points located at main lobbies, Plants One and Two; Engineering Center lobby; and Plant Three cafeteria.

SLO PITCH CALL ISSUED BY NRC

Call is out for Slo-Pitch softball teams.

All interested should either tie in with a team manager or put their names on the league roster in Personnel Activities office.

Practice games are to be played on Tuesday and Wednesday nights, April 28 and 29. Rules and regulations for league play will be formulated and posted after the practice games are complete.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

• Wednesday, May 6, 1964

HAWTHORNE

PALMDALE

EDWARDS AFB

SAN ANTONIO



DEMONSTRATION—Men from Sheet Metal shop demonstrate flexibility of new looseleaf format of Working with Northrop. Ray Workman, press operator, inserts corrected pages; Gerald Way, router operator, has Group Insurance Plan ready. New format will assure that Working with Northrop will always be current and in compliance with Company rules. Old book required total reprinting for changes. Now when changes are made, new pages will be issued, inserted; old pages discarded.

New Working with Northrop To be Issued Next Monday

A brand new Working with Northrop in first major revision since 1959 will be issued to all personnel next Monday, May 11.

Working with Northrop, a vital link in Company-employee relationship has, since Northrop was first founded 25 years ago, been the communication instrument of how best we can work together as an industrial unit. The statements of obligation and mutual responsibility outlined from chapter to chapter are not

arbitrary assumptions but represent sound time-tested experience gained through the years.

No static set of work regulations, Working with Northrop is a fluid, continually changing reflection of Company growth and expansion. But, however sensitive to the conditions of the time, the purpose has remained the same; a policy tool that helps make Northrop a good place to work.

(Continued on Page 4)

Norair Division Wins NASA Glider Contract

The Norair Division, Northrop Corporation, has been selected by NASA's Flight Research Center, Edwards, California, to build two low-speed research gliders for use in studying problems of piloting advanced spacecraft during landing. It has been announced by Dick Horner, Norair general manager.

Norair was selected for contract negotiations from among five companies who submitted proposals to NASA last month.

The final contract, for a fixed price, is expected to amount to about \$1 million.

The "lifting body" research glider program is concerned with horizontal landing capabilities of spacecraft of the future. It is a cooperative effort of the Ames, Langley, and Flight Research Centers for NASA's Office of Advanced Research and Technology. The three Centers are responsible for research and flight phases, while Norair will be responsible for the structural design of the shell and control

system of the two gliders.

NASA will furnish Norair with information obtained through lifting body research experience on the M-2 concept at Ames and the HL-10 concept at Langley.

The low speed characteristics of the two vehicles will be studied in the 40-by-80-foot wind tunnel at the Ames Research Center, Moffett Field, California.

After thorough testing and evaluation, both vehicles will be investigated in flight at Edwards. They will be carried aloft by a B-52 carrier—in a manner similar to the X-15—and released at 45,000 feet. The pilot will then glide the craft into a landing on Rogers Dry Lake at Edwards. Flight tests are expected to begin in 1965.

The flight research to be conducted with the two gliders is an extension of theoretical and wind tunnel work done at NASA's Langley and Ames Research Centers. It seeks to obtain large scale experimental results of the low speed characteristics of promising advanced vehicle concepts.

T-38 Stars in Air Force Cost, Quality Records

NEW ACCEPTANCE PROCEDURE SAVES DOLLARS

The men who manage the affairs of the Northrop-Air Force T-38 production program have written new twin chapters in cost improvement and quality that are significantly contributing to the trainer's already long list of accomplishments.

Add to time-to-climb records, on schedule performance, no shortages, flying safety and manufacturing efficiencies, a new streamlined system of production acceptance flights and you have

the company and the customer, has since April 1962 chalked up \$234,000 saved per Air Force fiscal year, it has been revealed by Lt. Colonel Charles W. Clark, Northrop Air Force plant representative. The savings have every indication of continuing and even increasing on through 1964 and '65.

The figures have been audited and approved by the Air Force Auditor General Resident office and are now a part of the national cost improvement picture.

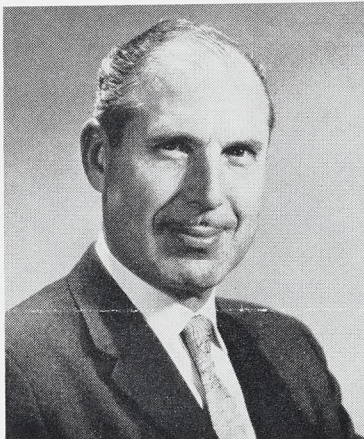
The change in flight acceptance procedures, which differ substantially from the traditional way of proving an airplane ready for customer acceptance, was first put into effect on a limited basis in October 1961. The action followed a series of Air Force and Company conferences headed by Colonel Clark, Bob Lloyd, Norair Division vice-president and assistant general manager-Operations, and Lew Nelson, director, Test section.

Key elements of Northrop management participating with Air Force counterparts include Manufacturing, Quality Control, and Flight Operations.

A "pilot team" concept with the full approval of both Northrop and Air Force Systems Command opened the way to a new look in production test flight

cost effectiveness.

Under the old system, rigid rules dictated that first flight of a new airplane off the line was undertaken by a Company pilot going aloft alone. Depending on discrepancies encountered, the next flight was usually made with two men aboard which served to verify the remedies effected, plus a check of the rear cockpit. If all went well and Company pilots approved the airplane ready, an Air Force pilot took over for a



BOB CATLIN

the latest prideful news about the Talon.

And this has been accomplished while maintaining a steady decrease in delivery discrepancies since the T-38 first went into service with the Air Training Command.

The new flight acceptance method, a joint effort between



MAJOR ROY BOYD

third flight. If additional discrepancies were encountered, additional flights were scheduled until the airplane was pronounced "clean."

Although the T-38 has had a remarkable record of quality since the first production airplane rolled out the door, Mr.

(Continued on Page 3)



NEW HONORS FOR THE TALON—Lt. Colonel Charles W. Clark, Northrop Air Force plant representative, congratulates Norair management represented by Bob Lloyd, vice-president and assistant general manager-Operations; Lew Nelson, director, Test section, at left; and Robert Elder, director, Flight Operations, at right; for cost improvement and quality records on the T-38 trainer. Air Force audited figures show that new pilot team acceptance system is saving \$234,000 per year. Charts help tell story. See page 3.

The Northrop Equal Opportunity Story

Recent advances in civil rights, made possible in part through the backing and efforts of such top-level groups as the President's Committee on Equal Employment Opportunity and the Advisory Council on Plans for Progress, have emphasized the expanding role of the American Negro in society and industry.

Northrop has been a member of the nation's Plans for Progress movement since November 1961.

into a new and select specialization in electronic engineering. In Norair's Electrical Laboratory, where he has been employed for eight years, he has become expert in the combined art and science of experimental stress analysis.

Mr. Walton's work involves the interpretation of strains and stresses in structures in aircraft and spacecraft.

As a programmer in the Sys-

By John B. Clark

Norair Director, Industrial Relations

when our President Thomas V. Jones, signed the official statement for the Company. (The statement was co-signed by then Vice-president Lyndon B. Johnson.) Because of this participation, and because of its long-standing policy of equal opportunity in employment, Northrop is proud of its part in the achievement of the gains that have been made in this area.



There are many Negroes in positions of responsibility and authority in the various divisions of the Company. Space does not permit reporting individually on them all in one story.

As an indication of the extent of their participation in the wide diversity of Northrop programs, the News recently conducted personal interviews with a random sampling of its Negro personnel in engineering, scientific, and computer-oriented occupations. These occupations were chosen particularly because the personnel in them provide good examples of the benefits of advanced education and its recognition at Northrop, no matter what the race or color of the individual.

At Norair, engineering talent combined with managerial experience is represented in Theodore Austin Bordeaux, chief of the Systems Analysis group, Research and Development department. Mr. Bordeaux heads a staff of 12 engineers and has full responsibility for systems analysis and cost effectiveness studies of various systems concepts of advanced missiles and aircraft.

L. Warren Morrison, holder of a B.S. degree in electrical engineering, has a personal interest in the Company's space achievements through his work at Northrop Space Laboratories. A senior member of the Advanced Systems Engineering department, he is engaged in the development of new space systems concepts. He performed similar work for Northrop on the Ranger space vehicle.

William H. Justice is an expert linguist in a parlance that is especially valuable to Northrop's work with volumes of both technical and business data. A senior data processing analyst in the Programming Systems and Languages department, he is responsible for the updating and application of computer systems at Norair.

James T. Walton has crystallized a varied science education

tems Engineering department of Northrop Nortronics at Palos Verdes. William L. Antoine writes special purpose programs for computers doing engineering data reduction and processing. Mr. Antoine came to work for Northrop immediately after receiving his B.S. in mathematics at MIT in 1962.

Joel Carroll, holder of a master's degree in mathematics, is putting his mastery of numbers to use in the design of advanced space vehicles and systems for the company. A senior engineer in Nortronics' Computer Systems group at the Johnson property in Hawthorne, he is currently working on the programming and application of digital computers on that project.

Another senior engineer at the Nortronics Division, James A. Jones, conducts engineering analysis of servo controls on advanced spacecraft and missile systems. He started as a draftsman for Northrop 12 years ago, making detail drawings for the F-89 Scorpion, and currently works on a special Company development program.

He has advanced professionally in step with the missile age, having moved from manned aircraft to the Snark, where he began his specialization in the area of servo controls. Holder of a B.S. degree, Mr. Jones was graduated *magna cum laude* from West Coast University.

At Northrop Ventura, Senior Engineer Eugene Hatcher is responsible for increasing the capabilities of a new concept in radio antennas—the Directly Driven Resonant Radiator, or "ring antenna"—developed by the division. He has an M.S. in physics received from Michigan State University at 22.

Charles O. Donaldson, another Northrop Ventura engineer, has been instrumental in the design of an electronic device that will help return America's first moon explorers home safely to earth. Considered a major achievement in electronic design, the "little black box" developed by Mr. Donaldson's team is the sequence controller for the entire earth landing system of the Apollo spacecraft.

Also at the Company's Ventura Division, James Bell is a highly specialized instrument calibration technician who finds himself called on for assistance on almost all of the advanced space, aircraft, and scientific research projects in work there. A metrology associate, Bell trained for the position while in the U.S. Air Force.

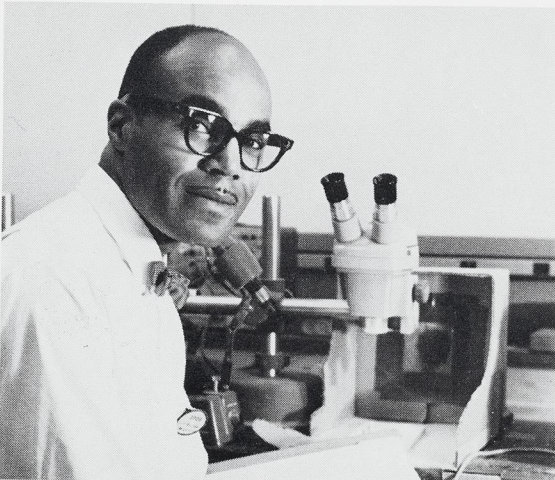
Key Men on Key Programs



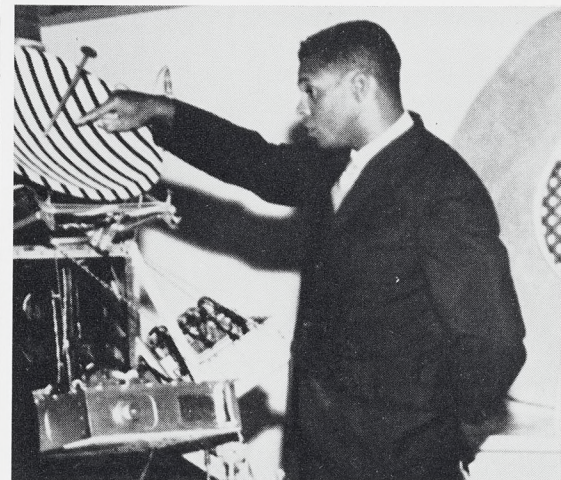
TED BORDEAUX—Heads staff of 12.



WM. H. JUSTICE—Data Processing man.



JAMES WALTON—Stress sciences.



WARREN MORRISON—Space concepts.



WILLIAM ANTOINE—Special programs.



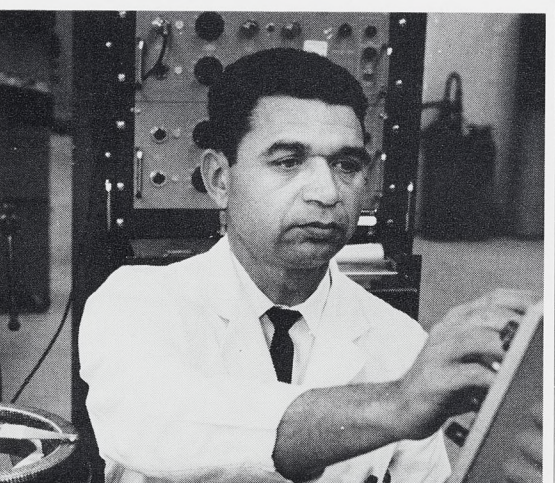
C. O. DONALDSON—Moon voyage.



EUGENE HATCHER—Ring antenna.



JOEL CARROLL—Computers and space.



JAMES BELL—Advanced research.



J. A. JONES—Magna cum laude.

T-38 Stars in New A-F Cost, Quality Records

(Continued from Page 1)

Lloyd points out that no matter how perfect there were no less than three separate flights "built-in" to the acceptance procedure—three being the absolute minimum. Company and Air Force targets under this system had been realistically pegged at about 3.3 flights per airplane.

Under the new system as adopted, the lone flights were discontinued and two pilots went aloft the first time up.

Mr. Nelson points out the advantages immediately realized. Said Mr. Nelson, "The background of in-flight quality of previously delivered aircraft was proof that the normal 'safety through minimum crew' initial flight procedures were no longer justified. With two men aboard on the initial flight, cockpit checks front and back could be made simultaneously, and discrepancies analyzed while airborne. With such 'two-cockpit' information, ground crews could better remedy the problem. If the airplane was right, this system would also serve both as Company okay and Air Force acceptance flight. Thus, the minimum of three flights mentioned by Mr. Lloyd was cut to one."

Progress under the plan was exceptional from the outset. Stated Colonel Clark, "When first started, the median number of acceptance flights per aircraft stood at 4.7. This means that each airplane averaged more than 4 flights before being turned over to the Air Training Command. The curve of averages showed immediate improvement. By April 1962 flights were down to 3.1. Today it has reached 1.8.

"Many T-38 airplanes have been accepted on the first flight."

Jack Mannion, manager, Manufacturing and Materiel, and Tom McCracken, Palmdale base administrator, in discussing the Palmdale acceptance program, both say that they expect by the end of this calendar year to see the average number of flights down to 1.5. By the end of calendar 1965, all parties agree that 1.1 flights is a strong possibility.

Just where does the \$234,000 per Air Force fiscal year, a truly monumental taxpayer savings, come from in this changeover in the T-38 test program.

R. M. McNamara, Norair manager, Contracts and Pricing, lists the following economies: less fuel, less oil, less general maintenance, less preflight and post-flight time, less parts attrition, less insurance, and as the averages have proved, less pilot time.

Captain Earl Hallum, Air Force flight test management officer, sizes up the savings directly by saying, "The T-38 is a two-cockpit airplane. We are just putting both cockpits to work

and getting the job done faster."

Now about quality —

Colonel Clark proudly displays a thick sheaf of AFTO forms, the majority of which carry the single phrase, "No discrepancies. Aircraft in excellent condition." AFTOs are discrepancy reports turned in by delivery pilots as soon as they reach home base with their new T-38s.

The cleanliness of the trainer has caused the average number of delivery flight discrepancies per aircraft to descend rapidly keeping pace with acceptance flight curve. In April 1962 when the team pilot system was started, discrepancies averaged 2.5 for each delivery. As of April 1964, the discrepancies stood at a phenomenal .6 per airplane.

Bob Catlin, manager, Quality Control, has gone on record for a target of .3 discrepancies per aircraft by the end of this calendar year. Both Mr. Catlin and Major Roy J. Boyd, chief, Air Force Quality Assurance Division, look forward to achieving .05 average by the end of 1965.

Substantiating the high quality rate, Frank Mathes, manager, Product Support, is in receipt of a letter from Serv-Air, Inc., which furnishes a glimpse of what others think about T-38 workmanship.

Serv-Air is a maintenance contractor to the United States Air Force with facilities at Vance Air Force Base. It is their job to make a thorough check of all airplanes received from Palmdale before they are issued to instructor pilots and students.

Quote from the letter:

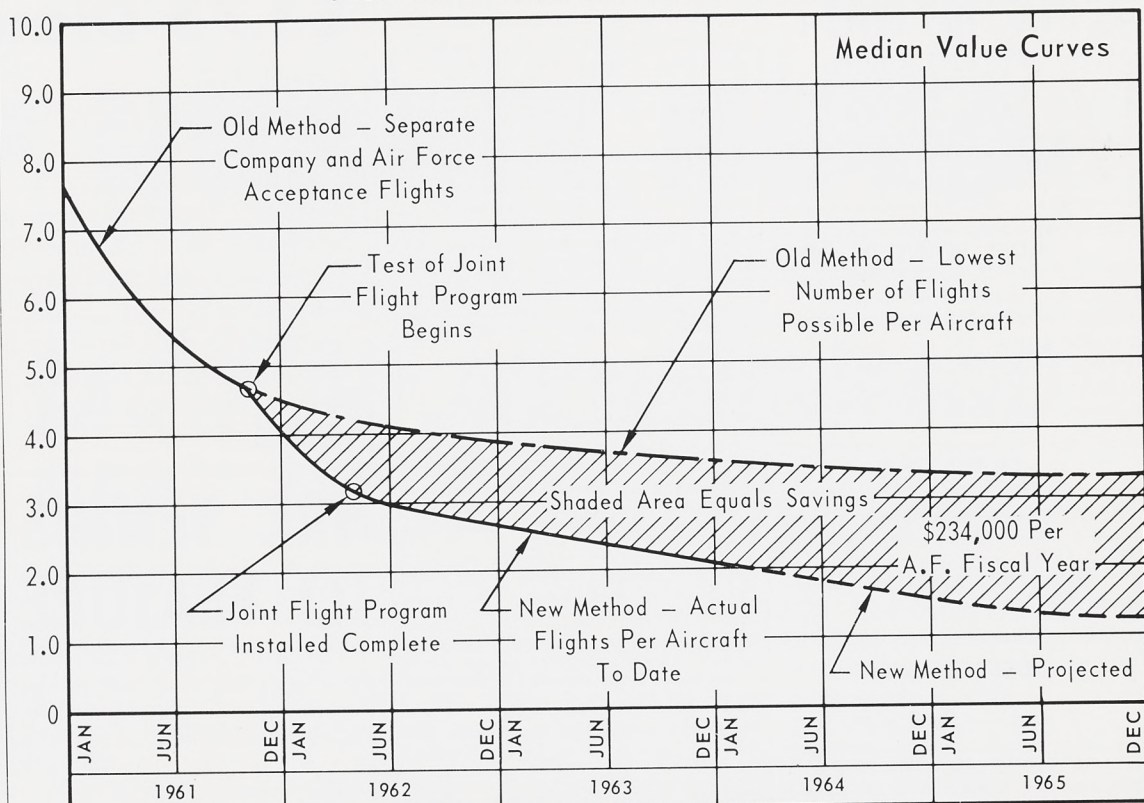
"At the present time we have 56 T-38A aircraft of which 54 were received direct from the factory. In receiving the discrepancies noted on the acceptance inspections, comments of the maintenance personnel and our personal inspections of the aircraft, we would like to state that your aircraft are being delivered in far superior condition to any we have had the opportunity to accept. It is very evident that pride in management as well as pride in workmanship of your personnel has accomplished what we all strive for, a superior product."

With the F-5B two-man fighter in production, Colonel Clark and Mr. Lloyd have signified intentions to apply the T-38 team system to the production and acceptance flights here in the manner as used on the T-38 with expectations of similar improvement benefits.

In discussing the single seat F-5A flight acceptance program and cost efficiency Colonel Clark says, "We expect to make the cost improvement record here equally significant. We have the team experience gained on the T-38, a valuable asset inasmuch as it offers us the opportunity to interchange acceptance flights between Norair Division pilots and our own Air Force test pilots. This will give us a time and schedule flexibility that never existed before. Furthermore, the F-5A has an advantage in that it is a single cockpit airplane and although it is more complex electronically, we feel that the potential here is as great, if not greater, than with the T-38.

"And the T-38 record to our knowledge is unsurpassed in supersonic airplanes."

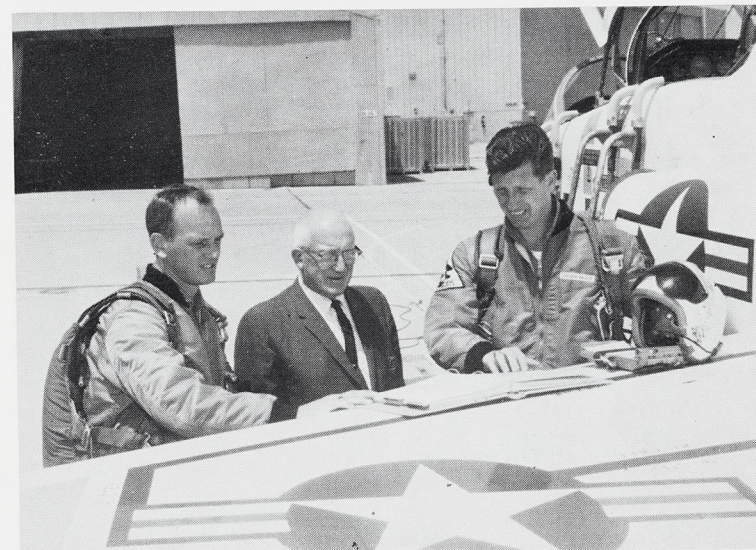
T-38 COST IMPROVEMENT CHART



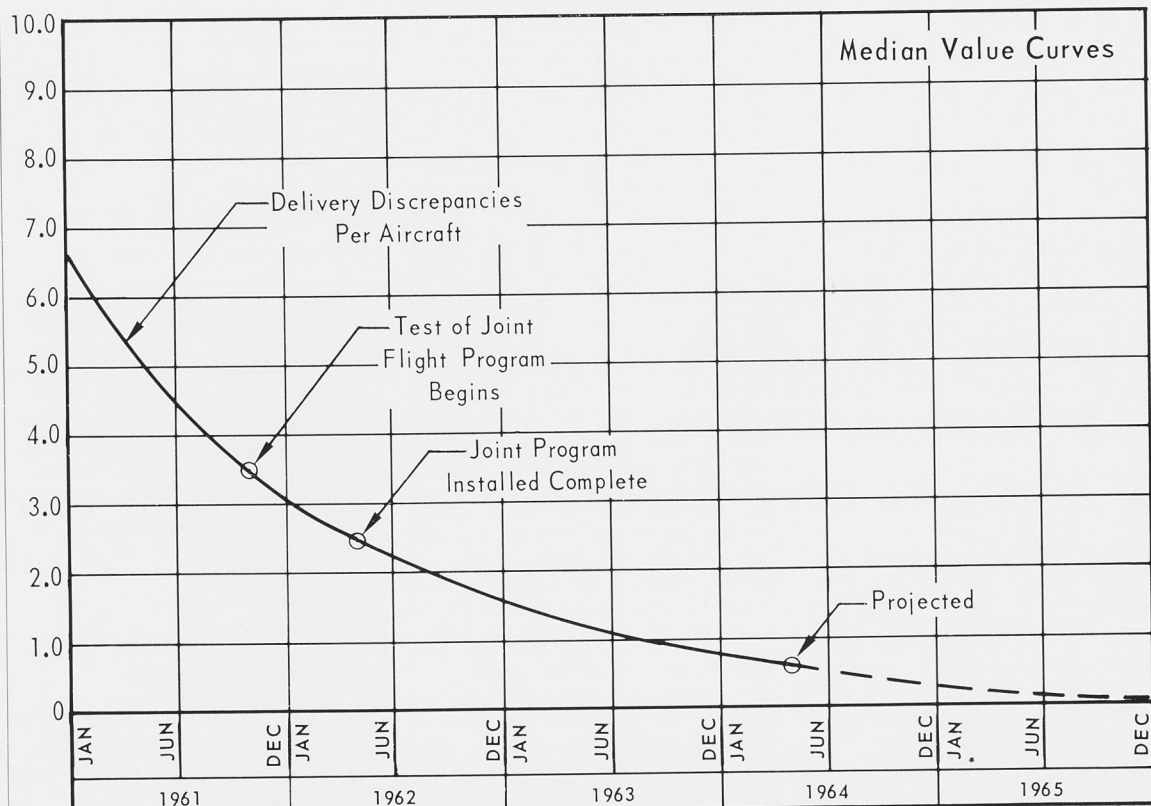
MORE RECORDS—Jess Dennis, Northrop Air Force chief, Production Division, discusses Talon's new cost and quality achievements with Ole Omley, director, Production Operations, at left, and Jack Mannion, manager, Manufacturing, at right. Good workmanship on the line has helped T-38 achieve an outstanding record in Air Force flight acceptance and discrepancies per airplane. Photo of nearly completed Talon shows cradling system used in Norair's new overhead rail assembly line.



PILOT TEAMWORK — At Palmdale reviewing flight acceptance records for the T-38 are, from left, John J. Januleski, production acceptance pilot; Tom McCracken, Palmdale base administrator; and Captain Earl Hallum, Air Force flight test management officer. With two men aboard, both cockpits are checked simultaneously, problems are analyzed while airborne.



T-38 QUALITY CHART



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NORAIR DIVISION
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CHARLES BRADFORD, Editor

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RIDES WANTED

7 a.m. — 3:45 p.m.

ORANGE & 37TH ST., Long Beach. G. J. Grummer, ext. 2574, GA 4-6383. 2

HARBOR BLVD. & ORANGETHORPE AVE., Fullerton. Bill James, ext. 2741, 525-1779. 2

8 a.m. — 4:45 p.m.

WOODRUFF & FOSTER OR ROSECRANS, Downey. Tony Jerzyk, ext. 1542, TO 1-9673. 5

LOS ALAMITOS & BRADBURY, Los Alamitos. R. L. Jones, ext. 2518, GE 1-9620. 5

RIDES OFFERED

7 a.m. — 3:45 p.m.

HARBOR BLVD. & ORANGETHORPE AVE., Fullerton. Bill James, ext. 2741, 525-1779. 12

8 a.m. — 4:45 p.m.

LOS ALAMITOS & BRADBURY, Los Alamitos. R. L. Jones, ext. 2518, GE 1-9620. 15

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

T-BIRD, 1960, all-powered, w/s/w, r/h, leather uphols., \$1800. DA 4-5774. A

FORD T-BIRD, 1957, rebuilt eng. & trans., \$1800 or \$300 & take over pymts. OS 5-9230. A

HEADBOARD, maple, dbl-size, \$30. 831-9707. A

FORD, Fairlane 500, 1957 4-dr. r/h, \$299. DA 9-0127. A

SLOOP, 26' Thunderbird, 1963, fully equipped, \$5900 or best offer. EX 1-1673. A

PLYMOUTH, 1955, r/h, 60,000 miles, \$300. DA 3-9084. A

ACREAGE, 1/2 acre in Apple Valley, water & elec., \$4400, take over \$45 mo. pymts. OR 7-8428 after 5 p.m. A

LOTS, 3, in Inglewood Park Cemetery, Avalon area, terms if desired, \$1400. 397-0431. A

ANGLIA 1961, 4-spd. trans., r/h, new tires, brakes, battery, \$575. EM 4-2974. A

HOUSE, 4-bdrm., 1 1/2-bath, 1301 sq. ft., 2.5 aaraae, close to Santa Ana Fwy., \$21,500; Chevrolet station wagon, 1959 9-pass. Kingswood, r/h, p/b, p/s, \$1225; tube & transit. data, RCA, w/rev., \$25; lots. Arrowhead Lake. elec. & water, \$3000 pr. UN 3-0735. A

CHEVROLET, 1956 4-dr. sedan, V-8, \$250. 676-6021. A

T-BIRD, 1962, full power, 24,000 mi., \$2800. FR 2-9418. A

ENGINE, Ford V-8, 1960, stock, \$50; Go Kart w/out engine, \$100. TO 9-6962. A

FREEZER-REFRIGERATOR, Amana Stormor, 18 cu. ft., holds up to 300 lbs. storage, \$150. 393-7464. A

WRISTWATCHES, Helbros, yellow gold, Lord & Lady Kent, \$45 ea. 758-5956. A

AIR BRUSH, artist's-type, Thayer & Chandler, \$20; ring set, wedding & engagement, \$150. OS 6-7357. A

PLYMOUTH station wagon, 1953, rebuilt trans., o/drive & ena., \$125. DA 9-9621. A

CHIHUAHUA, white & brown, deer-type, approx. 3.5 lbs., 4-yrs-old, papers, \$15. TO 2-9547. A

VOLKSWAGEN, 1963, r/h, w/s/w, 13,000 miles, \$1600. PL 0-2079 after 6 p.m. A

HOME, in Hollypark, 3-bdrm., 2-bath, w/w carpet, drapes, low down, terms, \$22,500. DA 5-7139. A

CORVAIR, 1963 500 coupe, 3-spd., 7600 miles, \$1695. FR 5-8204 after 3 p.m. & weekends. A

DRILL SETS, 2, in cases 1/16 to 1/2 x 64's, \$15; #1 to #60, \$15. 645-3381. A

RENAULT Dauphine, 1959, \$325. OR 2-8014. A

FOR SALE

MERCURY ENGINE, 1953, complete, disassembled, cleaned, \$40. FR 5-0908. A

BARBEQUE, closing lid for smoking, \$6; barbeque tools, \$2; tent, 10', \$30. Box 601. A

RAMBLER Classic, 1960 4-dr., stick, w/overdrive 6-cyl., \$850. OR 0-4342. A

HOUSE TRAILER, Builmore, alum., 12', sleeps up to 5, butane light, many other extras, \$495; Chevrolet El Camino, 1959, V-8, 348 cu. in. ena., 4-spd., r/h, \$1650. DA 3-1568. A

PUPS, Boston terrier, male & female, 6-wks-old, AKC reg., \$50 & up. OS 6-4266. A

MGA, rdstr., 1958, new eng. & clutch, \$950; tape recorder, trans. port., \$25; bar & stools, compl., \$35. OR 7-4405. A

MOBILE HOME, 1960 Palace Ranchome, 10'x50', 3-bdrm., front kitchen, breakfast nook, auto. washer, forced air heating, completely furnished, many other extras, accept furniture as part down, \$4500. 324-1016. A

FALCON station wagon, 1961 4-dr., 101-hp ena., auto. trans., r/h, w/s/w, \$1250. DA 5-7705. A

HOUSE, 3-bdrm., 1 1/2-bath, fireplace, carpets, drapes, built-ins, encl. patio, landscaped, 2-car garage, in Manhattan Beach, \$32,500. FR 4-1662. A

WASHING MACHINE, Laundrimat, \$75; tires, 4, 7.50x14, b/w, \$55. AX 4-4325. A

CAMERA Aras C-3, 35-mm, w/wide-angle lens, \$65. EA 2-2152. A

DESK, 27"x49", 7-drawer, \$25. 675-8813. A

WRISTWATCH, man's, Omega Seamaster, \$55. 675-7040 after 6 p.m. A

MGA, 1959 rdstr., r/h, w/s/w, \$300 cash, \$850 full price. Box 602. A

PONTIAC, 1961 sports coupe, full power, \$1950. OS 6-9627. A

SHELLS, 12 aa., all-brass & loading components, complete, \$20. 329-2371. A

SCUBA EQUIPMENT, complete, \$225. Box 603. A

TRIUMPH, 1962 TR-3 rdstr., 1-owner, trans. r/h, \$1700; Thunderbird, 1961, r/h, p/s, elec. brake hookup, \$2500. TE 4-9205 after 5 p.m. A

REFRIGERATOR, Philco, 2-dr. 14 cu. ft., 2-yrs-old, \$95; Rollaway bed, \$5; bicycle, 3-spd., 26", \$15. ME 3-2395. A

BAND SAW, Delta, 10" throat, w/motor, \$50; table saw, 10", tilt arbor, w/motor, \$25. 371-0680. A

TENOR SAXOPHONE, \$100. DA 4-2075. A

ACREAGE, 5.14 acres in No. San Diego County, water, elec., small house & fruit trees, \$17,500 w/ \$2000 down. 676-5253. A

VOLKSWAGEN, 1955 sedan, orig. owner, s/wave radio, 4-band, w/std. broadcast, \$575. OS 5-3643. A

RECORD CHANGER & cabinet, Capehart, \$20. OS 5-2159. A

SKI BOAT, Fantasy 15', 40-hp motor, trailer, big-wheel, \$900. NE 2-2357. A

CHEVROLET, 1958 Bel-Air, auto. trans., \$700; Ford, 1955, auto., \$400 or best offer. OR 4-1629. A

PLYMOUTH Fury, 1962 h/top, 2-dr., auto., p/b, p/s, AM & FM radio, V-8, \$1600. FR 4-2915. A

COLT, .32, auto., w/case, \$18; paddle board, 8', \$6. PL 5-7411. A

BUICK, 1956 4-dr. h/top, \$225. FR 4-4953. A

CORVAIR Monza, 1961, 26,000 miles, r/h, w/s/w, auto., \$1150; record cabinet, mahogany, \$13; sewing table, round, mahogany, \$12; lamps, early American, 2, \$9; coffee table w/Formica top, \$6; dinette set, 4 chairs, 2-yrs-old, chrome legs, \$20; coffee table, antique hand-carved Chinese, round, cherrywood w/4 stools, \$185; chest, antique hand-carved Chinese teakwood, \$95; dresser, \$8. 672-2091. A

HOME, 4-bdrm., Palos Verdes, landscaped, w/sprinklers, patio & fences, \$35,450. 377-4693. A

CHEVROLET, 1959 Bel-Air, 4-dr., 6-cyl., std. shift, \$895. DA 3-3584. A

OLDSMOBILE, 1956, rebuilt ena. w/25,000 miles, \$160. 379-4437. A

CHEVROLET, 1957 2-dr. h/top, Powerglide, r/h, w/s/w, p/s, p/b, \$825 or best offer. PL 5-8414 evenings. A

MOBILHOME, 1958, 10'x47' kit, State-liner, 2-bdrm., carpet, cooler, 10'x40' alum. awning, \$3000. 632-8215. A

HOME, 3-bdrm., carpeting, drapes, built-ins, breakfast bar, landscaping, fence, storage areas, near Artesia & Sepulveda, \$19,950. 376-9704. A

DINING ROOM SET, 9-pc. Chippendale, \$1750. 329-8382. A

FORD, 1940 4-dr. sedan, \$200 or best offer; sewing machine, Kenmore, birch natural cabinet, \$45. DA 9-7994. A

TR-3, 1959 rdstr., r/h, new clutch, soft top, windows & tonneau, \$1200 or best offer. FR 1-4704. A

WELDING TORCH, Craftsman acetylene, tips, cutting attach., 2 1/2 hoses & reg., \$35. DA 3-3818 after 5:30 p.m. A

\$3.75-Disneyland Ticket List-\$3.75

Beverly Hills.....	Kay Cribbs
Edwards AFB.....	Personnel Office
Mariposa Facility.....	Polly Middleton
Norair.....	Personnel Activities—Plant 1, Ext. 2784
Northrop Architectural Systems.....	Personnel Office
Northrop Space Laboratories.....	Personnel Office—East end-Main Building
Northrop Ventura—Personnel.....	Personnel Records Office, Rm. A-128, Ext. 414
Nortronics ES & E.....	Personnel Activities, Plant 2, Ext. 301
Nortronics—Johnson Building.....	Personnel Activities Office, Ext. 263
Nortronics SSD.....	Personnel Activities Building, Y-12, Ext. 244
Nortronics—Palos Verdes.....	Personnel Activities, Ext. 441
Palmdale Facility.....	Personnel Office

NRC TENNIS CLUB AWARDS BANQUET TO FEATURE PRO PANCHE GONZALES

The NRC Tennis Club, John Potts, commissioner, will present Pancho Gonzales, internationally-known professional tennis star, at a special Club banquet next Friday evening, May 8.

Location is the NRC Club-

house, 12917 Cerise Avenue, in Hawthorne.

The occasion will be the fifth annual NRC tournament awards and the Mid-Cities "C" league awards.

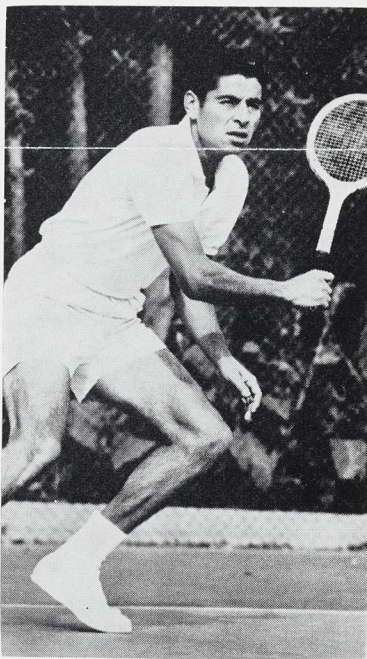
Banquet applications are avail-

able at Personnel Activities offices. No tickets will be sold at the door, says John.

Tickets are \$2.50 each. Social hour starts at 5:30 p.m. Buffet dinner at 6:30 p.m.

Mr. Gonzales, who is returning to the pro circuits after an absence of two years, made headlines recently when he entered in a field of the 10 best professionals for a masters' round robin tournament at the Los Angeles Tennis Club to be staged June 1 through June 8.

Others in the masters include Ken Rosewall, Lew Hoad, Rod Laver, Frank Sedgman, Butch Bucholz, Andres Gimeno, Pancho Segura and Alex Olmedo.



PANCHO GONZALES

Working With Northrop

(Continued from Page 1)

Formerly permanently bound "soft cover," Working with Northrop is now looseleaf in format and designed with three important improvements in mind.

1. A complete and up-to-date book at all times made possible by the simple process of inserting corrected pages for those out-of-date.

2. Timely communication with each person.

3. One book which will ultimately contain all Company pamphlets including, in addition to work rules, those covering Retirement, Insurance, Safety, et cetera.

Starting off with the message from Thomas V. Jones, Northrop

president and chairman of the board, followed by a short Company history and capsule sketches of all Divisions, there follows five major segments.

The book as issued contains complete work rules and procedures. When changes occur new pages will be printed and mailed to all personnel. Upon receipt the out-of-date pages should be immediately removed and the new pages inserted. In this way, personnel will be sure to have a book that is correct in all respects.

New sheets will be revision dated so that concurrency can be determined at a glance.

A feature of the new Working with Northrop is the tab index system in color which simplifies reference to the various subjects.

Important references that are high on the interest list:

A complete explanation of the new seniority plan, section 3, pages 10 through 22.

Definitions of salaried exempt and nonexempt, section 1, page 1.

Company provisions for vacation carryover, section 1, page 19.

Description of Cost-of-Living adjustment for hourly personnel, section 1, page 16.

Rules governing leaves of absence, section 1, page 23.

Age limitations, section 3, page 1.

Grievance procedures, section 3, pages 23 to 25.

An explanation of personal benefits, section 4.

Rules and regulations governing employee discipline, section 5.

Conflict of interest, section 5, page 3.

FOR SALE

OCCASIONAL CHAIR, cocoa brown, cushion & back quilted, \$35. DA 9-0295 evenings. A

TV, 21" Admiral table model w/stand, \$40; draught beer box, homemade, \$125; refrigerator beer tap compl. \$89. 371-7878 after 5:30 p.m. A

MERCURY, 1954 2-dr. h/top, o/hailed recently, \$275. Box 604. A

GENERATOR, Van De Graff electrostatic, 400,000-volt, 12" dia. sphere, 32" high, \$115; trash barrel, 55-gal. steel drum w/wheels & handle, \$5. 377-5862. A

WANTED TO BUY

TABLE SAW, small, DA 4-3291. B

CEMENT MIXER, small cap., gasoline powered, 377-5455. B

BREAKFRONT, mahogany w/glass doors to match a mahogany Duncan-Phyfe dining set. EX 8-3245. B

TV SET, 1951-1953, prefer Admiral, not operating & cabinet not necessary. FA 0-0106. B

CHEVROLET, 1957, std. trans., r/h, w/s/w, reasonable. OS 9-6256. B

AUTOHARP, used, PL 5-5149. B

DRAFTING MACHINE, Bruning, 645-1274. B

RENTALS OFFERED

APT unfurn., upstairs, 2-bdrm., \$175. 676-3028. E

HOUSE, 2-bdrm., aarb. disposal, fenced yard, utility room, carport, Redondo Beach, children ok, \$89.50 mo. 376-8545 after 5 p.m. E

HOUSE, 1-bdrm., stucco, lawndale, carport & fenced yard, unfurn., \$65 mo.; furn. \$75 mo. TE 3-2512. E

HOUSE, 1-bdrm., Inglewood, redecorated, water paid, \$90. DA 3-4116. E

APT, 2-bdrm., from \$110-\$155 mo. OS 6-7417 evenings & weekends. E

APT, 2-bdrm., modern, w/w carpet, drapes, built-ins, \$105 mo. 676-4185. E

APTS, new, 2-bdrm., 1 or 2-bath, elec. built-ins, carpets, drapes, aaraae, rad. heat, 11 blocks from King Harbor, \$125 mo. FR 4-4805. E

RENTALS OFFERED

APT, 2-bdrm, unfurn., aarb. disposal, aaraae, utility rm., 1 child, \$90 mo. 635-3784 after 6 p.m. E

APT, studio, 2-bdrm. 2 1/2-bath, 1400 sq. ft. in Inglewood, \$190 mo. 373-1143. E

APT, 1-bdrm., near Northrop, built-in kitchenette, util. pd., \$80; lae. deluxe 1-bdrm., adults, unfurn. \$80; furn. \$95. OS 5-9695. E

APT, unfurn., lae. 2-bdrm., pool, patio, closed aaraae \$115. DA 9-5986. DA 3-1946. E

APT, new lae. 2-bdrm., unfurn., 1 1/2 baths, tub encl., disposal, laundry facilities, 10 min. to Northrop, \$97.50 mo. PL 5-0630. E

HOUSE, 3-bdrm., 1 1/2-bath, aaraae, drapes, disposal, built-ins, patio, 1/2 acre, fenced, children ok, no pets, avail. June 15, \$125 mo. OS 9-4497, 676-0803. E

NRC TO SPONSOR BILLIARD PLAY

In keeping with trends of the times, the Northrop Recreation Club announces sponsorship of a pocket billiard league. Play will take place at the scrupulously clean Billiard Tree located on Imperial, just west of Crenshaw.

This is a new club and a recently regenerated sport, and Tom White, Personnel Activities, stands ready to answer any and all questions regarding methods of scoring, handicaps, schedules, type of game, and cost.

League officials are also being sought and those wishing to participate are asked to call Tom on extension 2784.

FOR SALE OR TRADE

CABIN CRUISER, 1958 Glasspar Delmar American, trailer, \$1695 or trade for Glasspar Avalon or Tacoma. 941-5240. M

TIRES, 3, 7.60x15, \$4 ea. or trade for good tires, 8.00x14. AX 2-4958. M

FISHING BOAT, 25', custom, lae. bait tank, \$2500 or trade for smaller boat. OS 5-7729 after 6 p.m. A

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

• Wednesday, May 20, 1964

HAWTHORNE

PALMDALE

EDWARDS AFB

SAN ANTONIO

Ticket Sales are Brisk



TICKETS FOR DISNEYLAND—Northrop Corporation President and Chairman of the board Thomas V. Jones agrees with Kay Cribbs, secretary, Public Relations, that a good time will be had by all Northrop employees who attend Company night at Disneyland, May 29. Ticket price is \$3.75 which pays for admittance, all the rides you want, dancing, attractions, what have you. And it's Northrop exclusive for that night as well. Kay is Disneyland ticket chairman for the Corporate office.

Armed Forces Day Message

"In today's complex and rapidly changing world, two elements are essential to continuing military strength: A vigorous, forward-moving technology and trained, dedicated people. Together they help keep our nation strong.

"Armed Forces Day 1964 is an occasion for the men and women of the Air Force Systems Command, and the thousands of defense industry employees and executives with whom we work, to recall anew the importance of our daily efforts in building aerospace strength.

"In the future, as in the past, the united efforts of dedicated people remain essential to the advancement of technology that is vital to the national security."

General Bernard A. Schriever
Commander
Air Force Systems Command

TACTICAL AIR COMMAND GETS FIRST F-5 FIGHTER

ARIZONA'S GOVERNOR FANNIN AN HONORED GUEST

The Tactical Air Command's 441st Combat Crew Training Squadron received its first Northrop F-5 tactical fighter last week at Williams Air Force Base, Arizona.

Major General John C. Meyer, commander, TAC's Twelfth Air Force, accepted the aircraft for the U.S. Air Force from Thomas V. Jones, president and chairman of the board of Northrop Corporation. Arizona Governor Paul J. Fannin was an honored guest at the official outdoor ceremony.

Supersonic F-5 fighters are under production for aircraft replacement in selected allied nations under the Military Assistance Program. Single-seat F-5A fighters and twin-cockpit F-5B models are being produced at Norair Division. The aircraft delivered was an F-5B.

The 441st CCTS, commanded by Lieutenant Colonel Jack E. Mass, was formed to conduct flying training for pilots from specified allied countries.

The first class of 12 allied student pilots begins flight training in the F-5 on September 14, 1964. Each student will receive 40 hours of flying time and 115 hours of academic training. The academic training will be conducted by the Air Training Command.

Upon graduation, the pilots will establish F-5 training schools in their respective countries.

The F-5 is intended for close support of ground troops, interception of enemy aircraft, attacks on communications and supply lines, and armed reconnaissance missions over enemy territory.

This supersonic 1000 miles-an-hour fighter aircraft has a range of more than 1600 miles with external fuel tanks and a ceiling of

52,000 feet. It carries 6200 pounds of weapons or reconnaissance equipment.

The F-5, a modern weapon for maintaining the peace, can operate from short, unprepared airfields in forward battle areas.

The F-5's take-off weight with full internal fuel load varies from 13,000 to 20,000 pounds depend-

ing on the armament load. It can climb at a rate of nearly 30,000 feet-per-minute at sea level.

The 441st CCTS, a subordinate unit of the 4510th Combat Crew Training Wing at Luke AFB, will consist of nearly 80 personnel. They will instruct flying training and conduct flight line maintenance training.



F-5 WELCOME AT WILLIAMS—Arizona Governor Paul J. Fannin, and Major General John C. Meyer, commander, Twelfth Air Force, Tactical Air Command greet first F-5 as it touches down at Williams to launch U.S. Military Assistance Program training. Note TAC's proud emblem emblazoned on vertical stabilizer. Airplane, an F-5B and fresh off the Palmdale final line, was flown in by Lt. Colonel Jack E. Mass, commander, 441st Combat Crew Training Squadron.

Ribbon Cutting for 120th Street

STRAIGHT LINE—Is shortest distance and Nortronics Johnson property plant moves nearer as a result of opening 120th St. straight through from Crenshaw to Van Ness. Officially commemorating the occasion are, from left, R. F. Miller, Nortronics vice-president and manager, ES&E; Los Angeles County Supervisor Kenneth Hahn; Hawthorne City officials J. Q. Wedworth, mayor, and Robert P. Reeves, councilman; and Betty Glaverson, administrator, South Bay Apartment House Association.



FRANK MACIAS

Dedicated Citizen

Today I should like to tell you about one of our fellow associates who has distinguished himself not only on his job at Northrop Space Laboratories but also in the field of human relationships.

Born in El Paso, Texas, Frank Macias is a member of NSL Bioastronautics Laboratory. Specifically, Frank assists in the plant physiology programs and nutritional research. We have learned that he is particularly well qualified for his position, holding a master's degree in the field of microbiology-biochemistry from the University of Southern California.

During World War II, Mr. Macias was a member of the United States Air Force serving in the European Theater of Operations as an engineer gunner. From 1943 until late 1945, Frank saw action in 15 missions over Europe, receiving an honorable discharge as a staff sergeant.

In my interview with Frank I urged him to tell me about his family, and learned that both, he and wife Margaret, looked forward to having four sons instead of four daughters who,

Equal Opportunity Foundation, of which Frank is treasurer and membership chairman, is primarily interested in promoting better employment and education of the Mexican-American community. This organization advises its members, through publicity, of available job and scholarship opportunities within industry and educational institutions. Regular meetings are held to discuss ways and means of solving educational and employment problems. One particular highlight in Frank's dedicated service occurred when he was instrumental in helping to make arrangements for and participating in a one-day conference held last fall for the President's Committee on Equal Opportunity, chaired by President Lyndon B. Johnson. It was at this meeting that I met my fellow employee and the commendations he received made all of us very proud. The need for upgrading the social and educational position of the Mexican-American youth is amplified, Mr. Macias stated, by the fact that only one out of four Mexican-Americans ever finished high school and only 2 per cent of the overall population of Mexican-Americans are college graduates.

The feeling of the Mexican-American organizations that

By John B. Clark

Norair Director, Industrial Relations

incidentally, carry the names Georgina, Christina, Carolina, and Delfina. They range in ages from 6 to 13. Frank and his family live in Pico Rivera. Georgina was to have been George Washington Macias; Christina was to have been Christopher Columbus; and yet another was to have been named Abraham Lincoln. But both, Frank and Margaret, are delighted that God blessed them with their fine daughters, who bring them nothing but joy.

Frank likes to join his daughters on a tennis court where he admits he does not always come out the best; or spending an enjoyable quiet evening with wife Margaret listening to his daughters on the pianoforte. Eleven-year-old Christina, admits Dad, has mastered the beautiful hymn, "Ave Maria," which has enriched the culture of Pico Rivera.

In the fields of human relationships, Frank is primarily interested in advancing equal opportunities for Mexican-American citizens by the upgrading of educational and social levels of young people. He is able to assist in accomplishing this by his participation in two major organizations devoted to these activities; namely, the American G.I. Forum and the Equal Opportunity Foundation. Last year, as chairman of the local chapter of the American G.I. Forum, Mr. Macias and the chapter members raised enough money through dances, barbecues and lectures to sponsor seven students of Mexican-American descent in college scholarships. Because of this, along with a high increase in membership, the Pico Rivera Chapter was voted the outstanding chapter in California.

The second organization, the

Frank is associated with is that, by increasing the social and educational standards of their community, the equal opportunities will come by themselves. They recognize this to be a slow process and that only through time and effort and understanding will they succeed.

It goes without saying that Frank Macias is in strong support of Northrop's "Plan for Progress." The principles and philosophy of the Plan are well complemented by Frank's individual efforts. In this particular period in our history, it is good to have Frank Macias among us. He exemplifies the talent and fine productive efforts of the more



GOOD IDEAS FROM PRODUCT SUPPORT—These are the people who just wrote Suggestion Award record in cost improvement drive in Product Support, Frank Mathes, manager, standing at right. Group helped achieve 1000 per cent increase in suggestion participation, received total of \$979 for their ideas. From left, seated, Gina Swoboda, Lucianna Clack, Irene Zarsky, Lucille Kaulukukui, and Amy Durocher. From left, standing, P. E. Saunders, Sylvia Justice, J. T. Towne, H. S. Collier, O. D. Barber, F. M. Edwards, F. E. Schneeberger, and Mr. Mathes. Not in photo, Gail Wisdom, B. D. Marshall, W. A. Sands, and M. A. Tielens.

SUGGESTION PLAN HONORS TO BE AWARDED FOR COST IDEAS

Thomas L. McCarthy, manager, Administration department, announced last week that Northrop's Suggestion Award Plan was being made an integral part of the Cost and Management Improvement program.

"Suggestions are the lifeblood of any good cost reduction program," Mr. McCarthy stated. "We want to get as many good suggestions as possible, and we want to get immediate implementation action in order to maximize savings. Using the present established Cost and Management Improvement team to assist line management will provide the necessary impetus."

W. L. Sparks, Division Cost and Management Improvement coordinator, stated that the major change has to do with eligibility, not only on who is eligible but also on what is eligible. "It has been our opinion for some time that many of our people have not been turning in suggestions because they felt they were

ineligible for awards," he said. "Our new plan removes this problem by making everyone, including supervision, eligible for some type of award and recognition. Cash award eligibility remains the same, but in addition, all bona fide suggestions, whether they are eligible for cash or not, will receive CMIP participation pins. All implemented suggestions which result in an approved CMIP report will reward the suggester with an attractive nameplate suitable for desk or toolbox use. A citation of achievement will also be given for each approved suggestion. A record of this citation will be placed in the employee's personnel folder. Management recognition of his participation will be given at time of review."

The new plan was pioneered by Product Support, Department 8800, Frank Mathes, manager. He has appointed a special review team consisting of Burton Pierce, chairman; Virginia Thy-

den, Paul Goff, Harry Crimmins, Wally Auckland, and Carl Valla-dares.

Mr. Mathes stated that results to date in his department have been outstanding. "We have already received over 200 suggestions, which represent a 1000 per cent increase over our last year's performance. In addition, we have made 23 cash awards totaling \$979."

Cecil Callaway, who has headed up the Division Suggestion Award Plan from its inception, will continue to handle the processing of all cash awards. Bill Stanton, long-time Northrop employee, has been enlisted to help handle the anticipated load increase.

Every employee is now eligible for an award of some type. Suggesters can get blanks from the nearest Suggestion Award box.

If there are questions regarding the preparation or submittal of suggestions, contact the department CMIP coordinator.

NSL-Huntsville Elects, Plans Florida Weekend

The Northrop Space Laboratories Huntsville department has announced the formation of a Northrop Recreation Club, according to Virg Maniogo, Huntsville Industrial Relations representative.

An organization meeting was held recently for election of officers and to make plans for their first annual spring dance which took place at the Redstone Arsenal Officers Club, May 2.

Newly elected officers for the coming year are Ron Radhoff, chairman; Pat Murphy, secretary; Roger Gilbertson, treasurer; and Otto Kosfold, publicity.

Wasting no time in his new role, Chairman Radhoff made the following commissioner appointments: Tennis, Bob Stark; Bowling, Bettye Tucker; Dance, Gayle Priest; Bridge, Don Decker; Ceramics, Betty Whirley; Spelunking, Al Merville; Golf, Otto Kosfold; and Hiking, Jim Holmbeck.

A "Florida Fling" for the entire family has been planned during the Memorial Day week-

end at Fort Walton Beach, Florida. Tentative plans call for swimming, sunbathing, deep-sea fishing, dancing, and several side tours. Information and details can be obtained by contacting Ron Radhoff, Pat Murphy, or Virg Maniogo.

Mr. Maniogo, a long-time Northrop employee, who has been active in many recreational committees over the past few years, stated that, "Huntsville people are the most willing and enthusiastic I have ever worked with and I am certain next year will be filled with special events."

NORTHROP NORAIR NEWS

VOL. 22 NO. 7

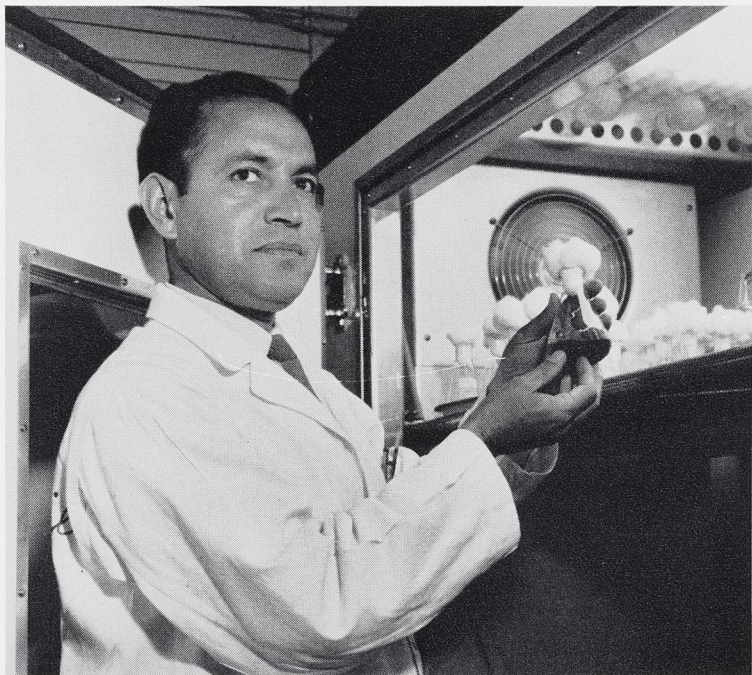
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A NORTHROP CORPORATION PUBLICATION

NORAIR DIVISION Published every other Wednesday

CHARLES BRADFORD, Editor

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SPACE AND THE HUMANITIES—Frank Macias, Northrop Space Laboratories' Bioastronautics Laboratory, assists in plant physiology programs and nutritional research. Frank holds a master's degree in Microbiology-Biochemistry from USC and is a leader in social and educational studies among his fellow Mexican-Americans.



Shielding Invention Licensed for Market

A temporary grounding of the Snark in the days when that weapon was America's only intercontinental defense missile caused Norair Division's Joe Murphy, project administrator, Special Projects Control, to make a vow and a promise with himself.

—There must be a better way to shield electronic weapons to effectively bar unwanted "noise" a pesky aerospace gremlin, that in this particular case caused the Snark's destruct circuits to misbehave.

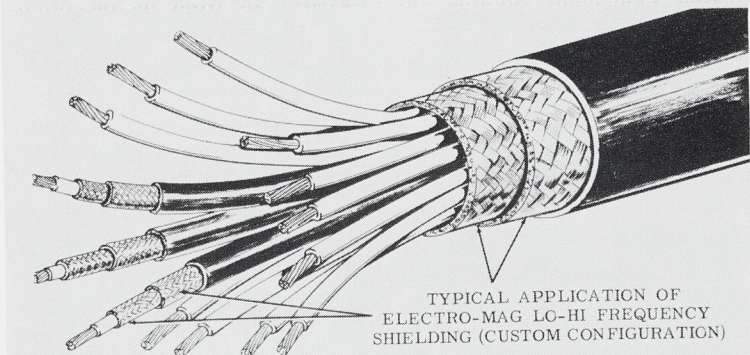
Mr. Murphy has kept his vow and his promise. Last week, following a long program of research and development in which he collaborated with Nortronics and B&B Electronics Corporation

are found wanting is Company proprietary information.

Generally, however, the method utilizes a novel combination of specially selected and processed high permeability material as an inner braided shielding and a specially selected and processed low permeability material for the outer covering.

The shielding is, of course, entirely flexible.

In addition to being marketed as custom shielding, B&B Electronics will also manufacture a quick fix application which is adjusted to different size cables as opposed to a fixed size and would be used during prelaunch and preflight checkout programs on aircraft, missiles and space sys-



of Gardena, the Company was able to announce the advent of a new shielding product for wire and cables, one that assures a big step forward for better reliability and performance in the electronics world which is so much a part of our lives today.

Missiles, satellites, lunar vehicles and commercial installations stand to benefit. When new design for cable assemblies and cable routing occurs, the new shielding should be used in order to circumvent malfunctions that can occur due to intercabling coupling of power frequency magnetic fields, or spurious steady state propagated noise (electromagnetic interference) onto the cabling and, thereby, directly into the sensitive circuitry of electrical or electronic equipment.

The Company has applied for a patent on the new shielding with Mr. Murphy as the inventor. B&B Electronics has been awarded exclusive license to market the product under the name of Electro-Mag Lo-Hi Frequency Shielding.

Just what makes Electro-Mag Lo-Hi Frequency Shielding work where other shielding methods

tems. Many hours formerly lost in eliminating stray signals will now be saved along with saving in cost. Quick fix configuration shielding can be installed without disconnection or removal of cables.

The significance of the Electro-Mag Lo-Hi Frequency shielding development places it in the category of an electronics breakthrough.

Mr. Murphy, in commenting on his success, wishes to acknowledge the help and assistance rendered by the following:

From Northrop Norair — Dr. William Emmerich, Harvey Cook, Stan Peterson, Product Licensing; and Harp Smith.

From B&B Electronics Corporation — Paul Hackstedde and Ross Vermillion.

From Nortronics — Wayne Taylor, Knox Johnson, Carl Pearlston, jr., plus many other Northrop Corporation personnel for their valued guidance and cooperation in helping confirm his theory and design.

**BUY
BONDS**

FINAL TEST REPORT—John Oliver, Corporate administrator, Product Licensing, third from left, presents the final test report for marketing of newest in electronic shielding to Gordon Brown, president, B&B Electronics. At left, Joe Murphy, inventor and project administrator, and Harvey Cook, project engineer, Norair Special Projects Control. At right, Paul Hackstedde, vice-president, and Ross Vermillion, liaison engineer and electromagnetic compatibility specialist, B&B Electronics. The product has been termed a breakthrough.

Literature of Science

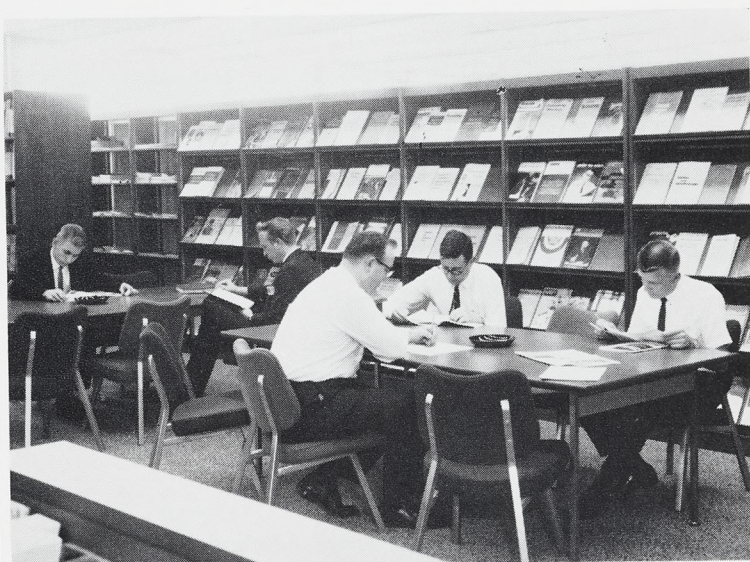


IN THE REALM OF SPACE—Northrop Space Laboratories library, first established in August 1962, houses the newest collection of scientific literature within Northrop Corporation; 2500 books, 7000 reports, and over 400 periodicals. Members of library staff shown in photo from left are Vivian Groeneveld and Elvira Kuehnegger, library attendants; and Susan Crowe, assistant librarian. Dr. H. N. Olsen, head, NSL Plasma Lab, works with Pat Lillis, head librarian, background, on a research report.

A-F GIVES WITH SAFETY SWIFTIES

Washington (AFNS)—A word game called "Tom Swifties" has flooded the country. The object of the game is to use appropriate adverbs or verbs after a direct quotation. For example, "He told me to paint the living room," she bristled. Pacific Air Forces has adapted the "Tom Swifties" to safety rules with these results:

- "Next time I'll use a ladder," he explained lamely.
- "We shouldn't have overloaded the boat," she gurgled.
- "Why should I learn to recognize poison ivy," he asked rashly.
- "Don't just shoot at anything that moves," he said aimlessly.
- "We shouldn't have gone out in a boat in this storm," she wavered.
- "That scatter rug's a menace," she let slip.
- "Store those knives out of the children's reach," he ordered sharply.
- "Don't stand under a tree during a storm," he thundered.
- "Perhaps this game will help prevent accidents in your family," he said paternally.



PERIODICALS, REFERENCE COLLECTION—NSL men make full use of facility's library in pursuit of their space programs. In photo, from left, are Roy Ward, Electronics; Dr. J. J. McClure, Plasma Lab; Dick Cook, Analytical; Les Jeffries and Bob Quinn, Radiometry. The library uses the IBM 7090 for compilation of KWIC (Key Word in Context) index for the rapidly growing report collection. Basic reference collection includes chemical abstracts from 1947; science abstracts; physics section from 1945 (incomplete); index medicus from 1960, biological abstracts from 1960, nuclear science abstracts from 1948, engineering index from 1958, plus various government abstract and indexing publications from DOD, AEC, OTS, GPO, and NASA. In addition, report literature in microfiche form is received. Also provided is reader-printer equipment.



RIDES WANTED

7 a.m. — 3:45 p.m.

ORANGE & 37TH ST., Long Beach. G. J. Grummer, ext. 2574. GA 4-6383. 2

7:30 a.m. — 4:15 p.m.

CENTURY & HAWTHORNE BLVD., Inglewood. Laverne Swanson, ext. 2063. OR 1-5106. 3

8 a.m.—4:45 p.m.

MARIPOSA & SHELDON, El Segundo. Violet Neuhoft, ext. 2753. TE 4-9576. 5

HAWTHORNE BLVD. & EDDINGHILL DR., Palos Verdes Peninsula. Evelyn Wallis, ext. 1575, 1576. 5

HARDY ST. & PRAIRIE AVE., Inglewood. A. M. Steinmetz, ext. 1392, 1638. 5

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

REFRIGERATOR, Frigidaire, \$30. AX 2-4958. A

FRE. METER, BC-221, 115-volt, \$30. 757-7244. A

KITTENS, Siamese, pedigree, seal points, blue points, 6-wks-old, \$25 & \$35. OS 5-9789. A

HOUSE, 4-bdrm., 1 1/2 baths, fenced, pool, Lancaster, \$16,450. WH 8-3912. A

LAWN CHAIRS, 2, redwood, adjustable, w/cushion, \$7.50 ea.; knee pads, sponge rubber, \$1.50. 377-5862. A

OLDSMOBILE, 88 Holiday, 1959 h/top sedan, r/h, p/b, p/s, \$950 w/air cond., \$1050. FR 8-1674. A

REFRIGERATOR-FREEZER, 18 cu. ft. Kelvinator, side-by-side model, \$250. OR 2-5878. A

CAMERA, Schneider Curtaon f:2.8, 28mm auto. lens for Exakta, \$75; tank radio receiver, Western Electric, 10-tube model BC 603-B, 10 p/button channels, AC conv., built-in speaker & h/phone jack, \$10. ST 8-9709. A

LATHE, metal-type, Craftsman, 18" ctrs., \$125; power saw, Comet radial & table, \$150. 370-1020. A

WASHER, 1964 Frigidaire, \$250; dryer, elec., \$150; or \$375 for both. 393-7464 after 6 p.m. A

PICKUP, Ford 1960 1/2-ton, V-8, 4-spd., r/h, camper, snow tires, \$1400. PL 4-8718 after 5 p.m. A

ACCORDION, 120-bass, 3 key switches & 1 bass, \$80; encyclopedia, Golden Home & High School, 1961 ed., 20-vols., \$10; encyclopedic-dictionary, Webster's unabridged, 1957 ed., \$3; world atlas, Hammond, ambassador ed., \$5; jacket, Pendleton-type, wool & Nylon, plaid, size 16, \$4; shirts, boy's, sizes 12 & 14, 50¢ ea. 645-1075 evenings. A

FORD, 1957 Skyliner, retract. h/top, cont. kit, all power, r/h, w/s/w, \$665. FR 8-3830. A

WONDERHORSE, spring-type rocking horse, lge-size, \$8. OS 6-8279. A

CORVAIR 700, 1960, auto., r/h, seat belts, \$850 or make offer. FR 9-8337 after 5:30 p.m. A

ROD, Quick Reflex, reel 300, Mitchel Garcia, \$20; Winchester 94, \$70. 933-1964. A

MOVIE CAMERA, Bell & Howell director series, f:1.8 zoom lens, built-in type-A filter, \$95. 377-3105. A

SHOTGUN, model 12 Win., 20 ga., nickel steel solid rib bbl., \$60; revolver, Colt O.P. 38 Special, \$60. FA 8-5365. A

HOUSE, 2-bdrm., dbl. gar., w/workshop area, enc. patio, close to shopping center, bus, schools, \$21,500. FR 4-3365. A

BUICK V-8 Special, 1962 conv., p/s, r/h, auto. trans., \$1750. FR 4-5808. A

HOUSE, 3-bdrm., 2-bath, fireplace, family room, walled yard, close to fwy., \$24,950. FA 0-2393. A

CORVAIR 700, 1961 2-dr. sedan, r/h, w/s/w, \$875. 677-8383. A

HOUSE, 3-bdrm., 1 1/2-bath, built-ins, dishwasher, water softener, cinder block fence, near Northrop & schools, \$21,950, or \$21,500 w/90-day escrow, 10% dn. OS 6-0782. A

FOR SALE

BED, rollaway, twin-size, w/mattress, \$17.50. OS 9-6982. A

LINCOLN, 1956 Premier, h/top, fully equipped, new tires \$595. 379-5994 after 5 p.m. A

CHEVROLET, 1959, 6-cyl., auto., new tires & ena., \$795; truck, 1955, 1/2-ton carryall, 6-cyl., stick shift, r/h, \$595. FR 9-3294. A

FALCON Futura, 1962 sports model, r/h, w/s/w, 4-spd., \$1650. Box 701. A

BEDROOM SUITE, flamewood, 2 tables, dresser & bed, \$70; sewing machine, Kenmore, all attachs., \$25; TV sets, 2, table model, 16" Admiral, 17" Packard Bell, \$20 ea. OR 8-1692. A

DINING ROOM SET, w/3 table leaves, 6 uphol. chairs solid oak, blonde, \$100. 477-1674 evenings & weekends. A

CORNET, super deluxe Getzen, \$80 or best offer. DA 9-9670. A

POOL TABLE, 7', w/all equip., \$50. SP 2-1789. A

TENOR SAX, Buescher, \$150; trumpet, Olds, \$75. FR 4-6003. A

RENAULT DAUPHINE 1959, 1-owner, 34,000 act. mi., \$325. EX 3-5421. A

TIRES 5, General 7.50x14 Nylon w/s/w, \$25 or \$6.50 ea. 371-8304 after 5 p.m. A

FORD XL, 1963, 406 cu. in. eng., 4-spd. trans., chrome rims, \$2500. 795-0158. A

CAMPING TRAILER, 12' alum., butane stove, lge. ice box, full-size bed, \$325. FA 8-3305. A

LUGGAGE, Oshkosh, ladies' wardrobe, 21" weekender, train case, lt. beige w/brown trim, \$15. DA 4-2816. A

F-85 OLDSMOBILE, 1961 auto. trans., w/s/w, 35,000 act. mi., \$1650. 675-7713. A

T-BIRD, 1961, full power, 24,000 mi., rh, 4 new w/s/w. \$2500; Triumph, 1962 TR-3 rdstr., 13,000 mi., r/h, \$1700. TE 4-9205, TE 5-2055 after 5:30 p.m. A

COMET, conv., 1963 4-spd. stick shift, 6-cyl., many extras, \$1995. 370-3128. A

MOVIE CAMERA, 8mm Brownie, f:1.9 lens, \$25. 371-0892. A

FALCON station wagon, 1961 r/h, deluxe model, \$950. HA 9-2630 after 6 p.m. A

COIN BOOKS, set of 11, \$6. Box 702. A

HOUSE, Palmdale area, Desert View Highlands, 3-bdrm., 2-bath, fenced yd., GI loan, \$13,000. 325-3057. A

RANGE, O'Keefe & Merritt, apt-size, aas, \$40; manale iron, \$25. 831-9589. A

BOAT, 15', fisherman-type, open cabin, Johnson 30-hp., equipped, \$300. 371-9730. A

PIANO, upright, \$25; jia saw, 10" w/motor, \$12. PL 5-7411. A

CORVAIR Spyder, 1962 2-dr., 4-spd. stick, r/h, seat belts, \$1600. OS 5-3016 after 5 p.m. A

RUNABOUT, 14' Kina's Yacht w/trailer, 10-hp Mercury or 35-hp Johnson, w/all access., \$550 w/Mercury or \$675 w/Johnson; surfboard, 14' Tandem, \$45. 676-4251 after 5 p.m. A

OUTBOARD MOTOR, 40-hp, Scott, elec., \$125. OS 6-9989 OS 9-6911. A

TV, 21" RCA Victor, 1960, mahogany console, \$75. 677-5398. A

CORVAIR Monza, 1960, stick shift, r/h, \$950. 379-2504. A

HONDA 50, 1963 sport 110, \$280. OS 5-2536. A

REFRIGERATOR, Westinghouse, \$150; studio couch, Vita Sleep, \$25; corner table, \$10; sectional 3-pc., \$10. FA 0-2862. A

CHEVROLET, 1959 2-dr. Biscayne, stick r/h, w/s/w, 1-owner, \$485 w/out smog control, \$500 with. DA 9-4447. A

BICYCLE, 24", boy's, \$25. 377-4489. A

OLDSMOBILE 88, 1958, 2-dr., Holiday h/top, p/s, r/h, \$750. 596-1280. A

HONDA parts, \$20. 292-4044. A

RUG, 9'x12', wool, beige embossed, \$40; platform rocker, \$20. 325-3865. A

CRIB w/new mattress & stroller, \$25. 645-0374 after 6 p.m. A

CAMERA, 8mm DeJur w/light bar, \$35; play pen w/pad, \$12.50. DA 3-4116. A

HOUSE, 3-bdrm., cpts., drapes, built-ins, breakfast bar, disposal, landscaped, near shopping areas & schools, 1 mi. from beach, \$19,950. 376-9704. A

SLOOP, 26' Thunderbird, 1963, fully equipped, \$5900 or best offer. EX 1-1673. A

TRAILER, 18', T & S sleeps 4 or 5 elec. refria. & hot water htr., \$1250. DA 9-2893. A

WALL TENT, 10'x20', 7' ridge, 5' at wall, 10'x12' main room, holds 4 cots, 8'x10' porch, fully screened, sewn in floor, zipper storm flaps poles & stakes, \$95. FR 1-3769. A

FREEZER lge. upright, \$225. OS 6-3090. A

LARK, Studebaker, 1960, 6-cyl., 4-dr., auto., 4 new tires, \$800. FA 1-3939. A

BREAKFAST SET, \$20; canoe, complete, \$65; washing machine, rebuilt, apt-size, \$12. OS 9-6449. A



NRC KNITTERS STAY THEIR FLYING NEEDLES—But only time enough for a photo during one of their Thursday night meetings held at the Clubhouse. From left are Doris Sablick, Thelma Mitwalsky, Vawn Sherwood, Roberta Longworth, Lynn Hogan, Ann Culver, Vera De Villiers, commissioner; Rose Deutsch, Peggy Meigs, Betty Rockey, Millie Young, Tracy White, Eve Ford, and Shirley Markley. Show how is part of Club program.

FOR SALE

ENGINE, 1959 Chevrolet 348 w/new parts, \$425. PL 8-5464. A

CHEVROLET Bel-Air, 1957 V-8, 4-dr., r/h, w/s/w, auto. trans., p/s, p/b, \$750. 834-7589. A

ACREAGE, 20, in Antelope Valley, terms, \$395 acre; 10 near Rosamond, \$445 acre, \$45 dwn., \$45 mo. on land contract. FR 8-1026. A

MORRIS 850, 1960 2-dr., 37-hp, \$350. DA 3-6658. A

WANTED TO BUY

USED BRICKS will pick up. OS 6-5921 after 5 p.m. B

SHELTER for water heater, metal, outside-type. GA 4-6383 B

FOR TRADE

AUSTIN HEALEY 3000, 1960, 2-seater, trade for late model car. 397-6326. C

FREE (to be given away)

KITTENS, 4, 6-wks-old. 831-3894. D

DOG, Belgian shepherd, 1-yr-old, aood w/children. OS 5-9695. D

KITTEN, Manx, 8-wks-old, female. 675-2813. D

RENTALS OFFERED

CABIN, Bass Lake, 2-bdrm. & large screened porch, 5 min. to village, 100 yds. from lake, \$125 wk. 645-1274. E

CABIN, Green Valley Lake, \$60 wk. 324-5961. E

APT, 2-bdrm., in Lawndale, 2 children of school age, \$95 mo, OS 9-1617. E

CABIN Lake Gregory, sleeps 6, make reservations, vacs. or weekly, \$60 wk. EX 1-2040. E

APT, studio, 2-bdrm., 2 1/2-bath, 1400 sq. ft. in Inglewood, \$190 mo. 373-1143. E

CABIN, Lake Arrowhead, 1/2 mile to village & lake, fireplace & patio, \$50 wk. 379-2504. E

APT, 2-bdrm., cpts., drapes, built-ins, disposal, aarage \$100 mo. 676-4185. E

APT, 1-bdrm., unfurn., built-ins, cpts., drapes, aar. & storage, Manhattan Beach, \$93. FR 4-5935. E

CABINS, Big Bear Lake, walk to lake or village, accommodations for groups of 4 to 20, from \$35 to \$100 wk. 714 539-6203. E

APT, 2-bdrm., new, 1 blk. from Northrop, no children, \$110. OS 6-7417. E

APT, 2-bdrm., w/w cpts., drapes built-ins, \$125 mo. 676-3062. E

RENTALS WANTED

HOUSE 2 or 3-bdrm., in Hawthorne, Wiseburn School District, by June 1, OS 9-6247. F

PERSONALS

EXPRESSIONS of sympathy & understanding extended by my friends at Northrop Norair & NSL over the recent passing of my husband, Lawrence, have been deeply appreciated. MARIE MUR- NANE. L

SINCERE THANKS & appreciation for all the good cards & remembrances from Norair friends during my convalescence. MAX WARREN. L

WE WISH to express our appreciation to all of our friends at Northrop for the helpful cards & phone calls during the hospitalization of our husband & father. Also to the Northrop blood bank. MRS. BUD BOWSER & FAMILY. L

COMANCHE 250 club being formed, for details, 757-7244. L

Try Your Hand at Knitting, Needles Fly, So Do Cares

Do you admire those beautiful hand-knit sweaters, coats, dresses, and wish that you could own same? No trick at all if you are willing to spend a little time and patience and don't mind spending a small amount of money, says Vera De Villiers, Knitting Club commissioner. Age or previous knowledge of knitting have nothing to do with it. Knitting

Club instructor, Rose Deutsch, sees to it that everyone in the club learns, from winding the yarn to sewing up the finished product.

Every Thursday night the needle-twirling group meets to receive instructions in the latest patterns, to exchange ideas, and to enjoy a social hour, and get in some goodly progress on a status article which can't be purchased in the stores. Many of our fellow employees find an evening of relaxation (and even entertainment) pays dividends in new articles of clothing or as gifts for Christmas, birthdays or that new arrival.

The newest knitting member is Personnel Activities Tom White's 11-year-old daughter, Tracy. At the rate she is starting off she will put the rest of the class to shame shortly.

The telephone girls are showing up regularly in full force.

Some of the women are wives of Norair men. One of the faithful comes as a friend from North American. Everyone is welcome.

Knitting is popular with doctors as a therapy treatment for shut-ins and tensionized persons.

SEE ANGELS PLAY YANKS, TICKETS AT P-A

Want to see the Yanks and the Angels play?

If so, the NRC has a block of 150 box seats waiting on a first come-first served basis.

The tickets are for Friday evening, June 5. The price is \$3.50.

Personnel Activities on a sign-up basis has arranged bus transportation to Dodger Stadium and back at \$1 a person. Bus pick up will be from the parking lot on the east side of Crenshaw, opposite gate 16 and it will be okay to park in the Company lot for the evening.

GIRL SCOUTS TO BE HERE FOR SURPLUS DUDS

With last year's Girl Scout rummage sale an unqualified success with each girl being credited with \$8 toward a sailing trip, NRC Commissioner Ester Cook advises that her charges will return to the plant for old clothes and other castoffs May 25 through May 29.

Collection trailers will be parked at gates 3 and 5.

All personnel are asked to inventory their closets, garages, and attics, and basements for surplus clothing, furniture, costume jewelry, blankets, dishes, pictures, sporting goods, what have you? The girls will appreciate any and all contributions that can be converted into a modest profit in their yearly fund-raising effort.

These are the self-same young ladies that make those most enjoyable to hear about trips down

GET ROUND TRIP TICKETS TO CATALINA, \$7.50

Tickets on the "big white steamship" to Catalina are now available at Personnel Activities, extension 2784. Ask for Blanche.

Round trip for adults is \$7.50. For children, 5 through 11 years, \$3.75, and if you are a little tike—under 5—you get by free if accompanied by mamma and papa or a guardian.

Week day cruises leave Wilmington at 9:45 a.m. On Friday and Saturday nights an additional sailing is made at 7:30 p.m.

The Catalina terminal is at the foot of Avalon Boulevard in Wilmington.

the wilds of the Colorado River in their do-it-yourself canoes.

The Girl Scouts hold their meetings on Tuesdays, 7 p.m., at the Naval Training Center in Hawthorne.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

• Wednesday, June 3, 1964

HAWTHORNE

PALMDALE

EDWARDS AFB

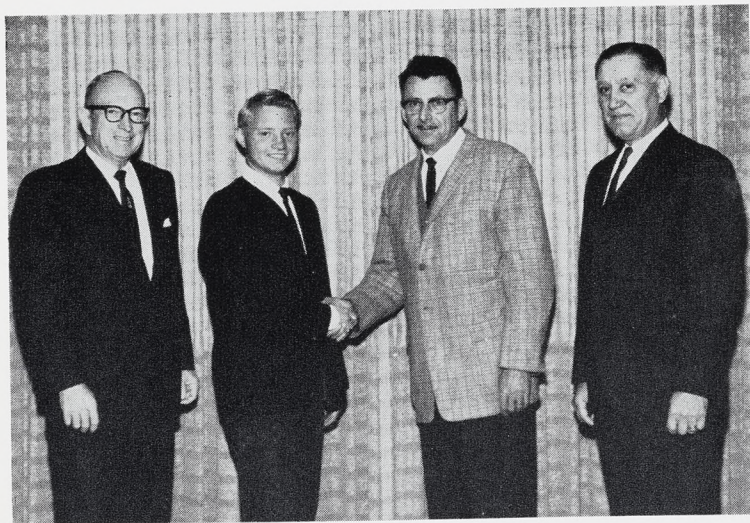
SAN ANTONIO

Honors for Seth



SCHOLARSHIP AWARD—Dick Horner, Corporate senior vice-president and Norair general manager, makes presentation of Company-sponsored Merit Scholarship Award to young Seth Alpert, proud son of proud parents Mr. and Mrs. Myer Alpert. (Mr. Alpert is a Norair Marketing man.) Also extending congratulations is Lucile H. Crain, left, principal of Palos Verdes High School where Seth attends. The young man, among other honors, was winner of the Harvard Book Award; is member and chairman of school tutoring program for National Honor Society; and is treasurer of the Menorah Federation of Temple Youth. Seth will major in math at Harvard. Aside from scholarship and fellowship awards, Northrop's Aid to Higher Education program includes grants to private colleges, and matching contributions made by Northrop personnel to institutions of higher learning.

Distinguished Guest



THE BEST VEEP IN ALL J-A—Charles Swan, 16, Downey, California, receives congratulations from Norair Management Club President Leo Sacks, on being selected the best Junior Achievement vice-president of Manufacturing in the Southern California area. Adding their approval, at left, Ed Laski, past Management Club president, and John Breneman, Norair manager, night Operations. The Club-sponsored award includes an all expense paid trip to the national finals at Indiana University. Vice-president Swan will also get a trophy and be a dinner guest at the next M-C meeting. The contest is to encourage young men and women in Junior Achievement to a better understanding of the free enterprise system in America.

Welko Gasich Interview

By Aerospace Reporter

See Pages 4 and 5



BRISTLING WITH ARMAMENT—F-5 Tactical fighter, first to arrive at Williams Air Force Base for Military Assistance Program, displays her arms as part of official acceptance ceremony. Group of TAC airmen take stock of what their newest supersonic baby can do in the business of close support, interception of enemy aircraft, and attacks on communications and supply lines. F-5 ceiling is over 52,000 feet, yet she can go in at tree-top. Speed is 1000-mph plus. Firepower includes two 20-mm cannons in nose.

T-38 Trainer In 1000 Hours Of Accident-free VIP Hops

One thousand hours of accident-free supersonic flights.

Kings, commoners, astronauts, novices, pilots, politicians, newsmen aboard.

N-5124, Norair's leased T-38, in a three-year program of demonstration flights, has taken over 1000 aerospace VIPs aloft to help spread the word throughout the free world of her outstanding performance characteristics.

The 999th flight was made from Buckley Air National Guard Base in Denver, Colorado with his Majesty, Hussein I, King of Hashemite Kingdom of Jordan, in the front cockpit. Also on that day, King Hussein's chief of staff, Major Saleh al Kurdi of the Royal Jordanian Air Force took a flight. Both men, experienced pilots, took the controls to maneuver the airplane through the skies.

First assignment for N-5124 was the Paris Air Show in 1961. Since then Europe, and practically every important air base in the United States. There were many flights from Andrews AFB close by the nation's Capitol, and a headline series of hops from NASA's Manned Spacecraft Center, Houston, Texas with America's astronauts in the driver's seat.

And now the airplane has finished her demonstration flights and will be returned to the Air Force for a new operational assignment.

Her crew from Edwards and from Customer Relations' OPIN-DOC group, George Sterling,

chief, are quite naturally sorry to part company with N-5124 after so many days and nights of close association. She was a good airplane all the way and faithful. Strong attachments formed. But time passes.

A brand new F-5B, two-seat fighter, is slated to take up the

demonstration work where the trainer left off and the plan looks to hold just as much excitement and prideful accomplishment.

The schedule appears to be a European and Middle East tour to start things off with. The boys are getting their bags packed.

Horner to Address Next Management Club Meet

Northrop Norair Management Club will start the 1964-65 year with Management Night, set for June 5 at the Airport Marina Hotel, it has been announced by Leo Sacks, president.

Featured address for the evening will be Norair's new General

Manager Dick Horner. His subject will be "Problems and Opportunities."

Mr. Horner is also Corporate senior vice-president, Technical and general manager, Northrop Space Laboratories.

Honored guests for the evening will be Lt. Colonel Charles W. Clark, Northrop Air Force plant representative; Robert R. Miller, Corporate senior vice-president; William Larrabee, Corporate vice-president, Legal; Norair vice-presidents Welko Gasich, assistant general manager, Technical, and Bob Lloyd, assistant general manager, Operations; R. P. Jackson, vice-president and assistant general manager, NSL; and T. L. McCarthy, Norair manager, Administration.

There will also be Junior Achievement awards presentation, Mug-of-the-Month, professional entertainment, and door and raffle prizes.

Cocktail hour will be from 5 to 6 p.m. Dinner follows at six.

The formal part of the program begins at 8:20 p.m.

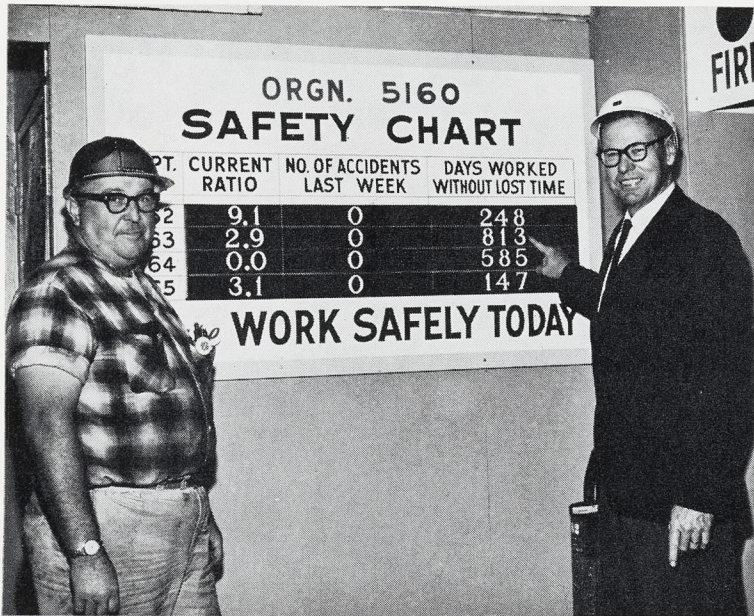
TALON RECORDS FOR SAFETY, ATTRITION

From the very first test flight through May 24, 1964, the T-38A Talon has maintained the lowest attrition rate of any supersonic aircraft. The attrition rate to date is 3.96 per 100,000 flying hours.

No accidents have been attributed to materiel failure.

This exceptional safety record is further substantiated by the fact that the T-38A is the only supersonic aircraft to complete the entire Category I, II and III flight test programs without an in-flight accident. An additional 31,000 flight test hours have been flown by Norair without an accident. This is also a record unmatched by any supersonic aircraft.

Safety in Maintenance



SAFETY CHART—Organization 5160, Lawry Puder, general foreman, Plant Maintenance, keeps track of its safety record and points to the outstanding score of days worked by 5163 without lost time. At left is Paul Hoskins, leadman, Machine Repair and a Workmen's Safety committee man for zone 15. Chart posted in Maintenance area makes for keen safety competition between organizations.



FORTY-EIGHT DAYS—Ralph Allen, coordinating foreman, Construction unit and Eddie Cardarelli, wood construction foreman and safety committee man, zone 11, proudly point to bulletin that states 48 days have been worked without lost time accident. Safety bulletin boards are also used as educational media. Note cartoon in center on the right and wrong way to lift.

Earthquake What-to-do Outlined by Dr. Richter

Norair's Bill Parker, chief, Plant Services group, the man we would look to for order and guidance should catastrophe befall, relates to the News three brief earthquake rules as formulated by Dr. Charles F. Richter, professor of Seismology, California Institute of Technology.

Before earthquake occurs—Support public and private programs for rebuilding or removing unsafe structures.

When earthquake occurs—Be calm. Do not run. Remain where you are, indoors or outdoors, but be alert for falling objects and try to avoid them. Avoid fallen wires.

After earthquake occurs—Remain calm. Check for gas and water leaks, for fires, and objects about to fall. Render assistance to any injured.

Do not use telephone, except for emergency. For information, turn on your radio. Bear in mind that early reports may be distorted.

Do not repeat alarming stories. Do not go to disaster scene un-

less you are officially authorized to do so. (Penal Code, Section 409.5.)

Dr. Richter further states: "The major present risk in this area in the event of a strong earthquake is not the direct effect of the earthquake itself, it is the risk due to public panic and hysteria. This is particularly true now that our population includes so many new residents who have not experienced a strong earthquake."

"Very few people are ever injured or killed by earthquakes as such. They lose their lives or are injured in the collapse of old and unsafe buildings, public and private, which should be reinforced or replaced; or in fires which get out of control."

Norair's emergency and disaster control program comprehensively spells out responsibilities and procedures for all personnel in case of earthquake-type trouble.

Details are carried complete in Executive Bulletin 11-5 and in the Industrial Relations Brief for Supervisors, No. 5.

The New Board of Control



MANAGEMENT CLUB OFFICIAL FAMILY FOR 1964 — With new President Leo Sacks, seated, center, they are, from left front, John Holman, forums; Joe Blaire, sergeant-at-arms; Rolly Pontious, treasurer; Mary Delaney, secretary; Mr. Sacks; George Babajian, vice-president; Ed Wilson, education; and Bill Hoffman, publicity. Standing, from left, Ed Foord, tickets; Bill Schramm, education; Harvey Cook, finance; Ed Seyfried, programs; Jim Breneman, vice-president, nights; Jack Cushman, membership; Louise Hobson, personnel; Ed Nolan, facilities; Ed Laski, charters and policy; and Bill Jones, parliamentarian. Next meeting is set for June 5.

Secretaries to Hold Office

Three Northrop secretaries have been elected to high office in the Airborne Chapter of the National Secretaries Association, it has been announced by Pat Carlberg, secretary to Paul Wierk, director, Technical Ad-

relations representative. Mayme Colombo, secretary to Jack Manion, manager, Manufacturing and Materiel department, was elected recording secretary; and Marge Stevens, secretary to Dick Beck, director, Manufacturing Engineering section, won the office of corresponding secretary.

The NSA, one of the busiest groups of its kind, lists 23 committees in the organization set-up. These range all the way from arrangements and budgets committees through education and employment to scrapbooks, secret sisters and the speakers bureau.

Northrop secretaries recently

participated in one of the most important Girl Friday events of the year when they helped make plans and stage annual Secretaries Week.

The local Airborne Chapter was started in May 1953 with 30 charter members. It is now the largest and most active in the California division and boasts



MAYME COLOMBO

ministration and National Secretaries Association ex-president.

And to make the event more newsworthy, out of the six offices up for balloting, our Norair girls took three.

Marianne Weltman, secretary to C. R. "Bob" Gates, manager, Marketing department, was made second vice-president and public



MARIANNE WELTMAN



MARGE STEVENS

five sub-chapters throughout the southland from Santa Barbara to Palmdale.

ELECTRONIC EXHIBIT

Education and Training and the Norair Standards Calibration Laboratory have made arrangements for an exhibit, June 15, at Norair to be presented by General Radio Company and Tektronix, Inc.

The exhibit will provide an opportunity for Norair personnel to see a variety of new equipment. Mr. Stevens of General Radio will be on hand to answer technical questions.

All interested Norair and Norair personnel are invited to attend.

Location is the Environmental Test Laboratory.

Time is 10 a.m. to 2 p.m.

NORTHROP NORAIR NEWS

VOL. 22

NO. 8

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A NORTHROP CORPORATION PUBLICATION

NORAIR DIVISION
Published every other Wednesday

CHARLES BRADFORD, Editor

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Urban League Honor



IN SINCERE APPRECIATION—Wesley R. Brazier, executive director, Los Angeles Urban League, right, visits Norair to present Certificate of Merit to John B. Clark, director, Industrial Relations. Urban League honored Mr. Clark for his outstanding service in support of their 1964 membership campaign. Los Angeles Urban League is a Community Chest agency.

First Flight in the Fighter



FIRST FLIGHT—Captain Per Ekholdt, Royal Norwegian Air Force pilot, assigned to the F-5 Category II/III Test program at Edwards Air Force Base, standing second from left with helmet and parachute, is congratulated upon return of his first flight in the fighter. Others in photo from left, are Air Force officials Major James W. Wood, F-5A/B Test director; Major Henry C. Gordon, F-5 Joint Test Force operations officer; Major Aubrey C. Edinburgh, operations officer, TAC; and Major Bud Butcher, F-5 project officer, Military Assistance Advisory Group, Oslo, Norway.

Antelope Valley NRC to Stage Picnic at Soledad Sands—June 20

The Antelope Valley NRC will stage their first picnic of the summer, June 20, states William "Mac" McGrath, Edwards liaison planner and president of Antelope Valley NRC.

Special invitation is extended to all former Antelope Valley Northrop folk to come and renew old ties.

The big get-together will be held at Soledad Sands on Soledad Canyon Road, about two miles south of Acton. The park opens at 10 a.m. for those who want to make a full day of it. The picnic officially gets under way at 2:30 p.m.

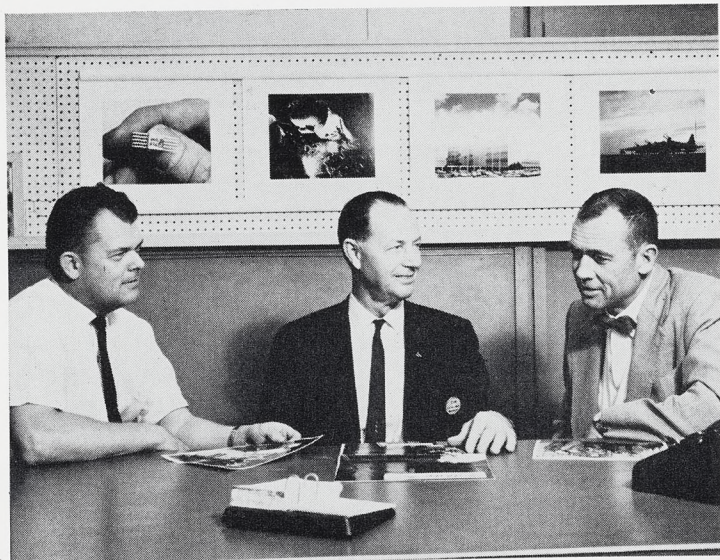
This will be potluck. Bring lunch enough for the family and it will be combined with all the other lunches to create one giant spread of potato salad, deviled eggs, ham sandwiches, tuna sandwiches, etc.

There will be free beer, candy, and soda. Paper plates and cutlery will also be furnished.

A feature of the picnic is judging of the best entree, best salad, and best dessert, with prizes. Contest starts at 4 p.m.

**Buy
Savings
Bonds**

Happy Birthday



EIGHTEEN YEARS YOUNG—Norair Suggestion Award Plan celebrates its 18th anniversary this month and to make it official Cecil Callaway, center, Plan coordinator for all of those 18 years, reviews past accomplishments and future goals with star suggesters Bob Young, left, and Tom Polliard, right. Tom was the first to earn \$1000 for his idea on the F-89 wing fixture program. Bob was most recent to earn over \$1000. His suggestion was in sharpening and split pointing drills on the Winslowmatic. For Suggestion Award Plan new look with honors expanded to include all personnel, see last issue of the Northrop Norair News, May 20.

And there will be more, says Mac. Namely, swimming, games, and relaxation.

Dr. Krebsbach Elected to Medical Group

Norair chief, Medical group, Dr. R. J. Krebsbach, has been elected a fellow of Industrial Medical Association.

The honor was announced at the recent IMA convention in Pittsburgh, Pennsylvania.

Membership in the exclusive fraternity is given only to doctors in industry who specialize in occupational medicine and who perform services that are of significance on a national level.

Physicians considered for the fellowship are drawn from companies where outstanding industrial medical programs are in force. There are over 2500 physicians in the IMA organization.

In addition to this honor, Dr. Krebsbach recently completed a nine-week Air Force course at the Aerospace Medical School at Brooks Air Force Base, San Antonio, Texas.

The classes which are designed for the special training required for Air Force flight surgeons include lectures and practical application in jet flight, including aerobatics, parachute jump indoctrination, parachute dragging, ejection seat training, and altitude chamber rides, including pressure breathing and pressure suit operation.

Dr. Krebsbach was also indoctrinated in Air Force global medical practices, a course which will be helpful in Company planning for F-5 overseas support.

Special lectures were given in cardiology, psychiatry, and eye, ear, nose and throat, with emphasis on conditions affecting flight personnel.

Cost Improvement Shows Gain in Second Quarter

Northrop Corporation's Cost and Management Improvement Program reports a substantial savings increase for the second quarter as compared with the first quarter.

William H. Gurnee, Corporate assistant to the senior vice-president, Administration, reveals that savings exceeded by \$1,074,516 that of the previous three months. There was also a marked improvement over first quarter reports from participating divisions as to cost detail, idea scope and format.

Progress is being made toward additional reporting improvement, especially in back-up information, narrative data, and in methods of calculating savings, Mr. Gurnee said.

Of special significance was the increase in the number of cost reduction actions reported. There were 490 in the second quarter as compared to 334 in the first quarter. Most of this increase was in the less than \$10,000 savings category with a substantial number of individual actions running less than \$100. This is an indication of increasing awareness on the part of Northrop people in the program. Savings are now being reported that were formerly considered too small to bother with. Such "grass root" participation is essential to achieve the Northrop goal, it was stated. All savings, no matter how small or seemingly unworthy, should be documented.

The Company was given nationwide publicity recently in Newsweek Magazine when attention was called to a huge bulletin board in the Corporate office which lists new ideas and savings as the fiscal year progresses. Newsweek also reported that Northrop Ventura saved \$25,000 in one action when it was discovered that they could borrow space suits from a nearby Navy station rather than buying them outright.

Another item displayed in the Newsweek article was the \$70,500 savings on our single-point attachment for the F-5 intake duct

which was the result of a Value Analysis study conducted by Technical.

All Norair Division lobbies now have Cost and Management Improvement "three story" display panels that can be rotated, each side revealing charts, graphs, and figures on savings progress. In addition to the displays in the lobbies, five other boards are located at strategic points throughout the facility, including one at Palmdale.

Blood Donors Write Record Bank Deposit

One of the most successful in recent years — the blood bank visit of May 20, it is reported by Marie Tully, Personnel Activities.

Star of the event with 100 per cent was Dr. E. W. Emmerich's Advanced Materials Application branch, Technical. All six members of the team were donors.

The blood bank received 244 pints of blood at a rate of 61 pints an hour.

Outstanding participation was registered by the people from Subcontract Operations and the T-38/F-5 Forward Fuselage, Wing, and Aft Assembly Operations groups, Robert C. Howorth and A. R. Carr, superintendents, respectively.

High scoring branches and the foreman in charge were 5660, Boeing Fuselage, Tom Brazil; 5670, Boeing Wing, John Holman; 5754, T-38/F-5 Forward Fuselage, George Swanner; 5756, T-38/F-5 Wing and Aft Fuselage, Whitey Lowe; 5757, T-38/F-5 Fuselage Mate and Complete, Leo Sacks; and 5758, T-38/F-5 Forward Fuselage Mate and Complete, Don Lutes.

Staunch Record



NEVER LATE, NEVER ABSENT—Art Zahn, assembly inspector, receives his 15-year service pin from Norair's Manager Quality Control Bob Catlin with congratulations for a most stalwart Division record. Mr. Zahn has never been late or absent during his Northrop employment. He has worked in Plumbing and Mechanical Subassembly and on the F-89. Presently he is assigned to the T-38 gearbox overhaul program in Advanced Production. Part of the congratulatory proceeding was a fine cake of which his many well-wishers partook a goodly share, down to the last crumb.

Technology, New Business And Tomorrow's Contracts

OUR ROLE IN THE AEROSPACE FUTURE

Last week Welko Gasich, Norair vice-president and assistant general manager, Technical, in an exclusive interview with Aerospace Reporter, outlined some of the exciting technological milestones we at Norair can expect to witness in the next few years. In talking informally of the future, Mr. Gasich spoke on marketing and research plans, management concepts, and the host of other subjects that has made the technological preparedness of the Division the key to our role in that future.

Mr. Gasich, who leads the Division's 1400 scientists, engineers and marketing people, made it abundantly clear that progress must be founded on proper technological basis. His job, he feels, is to make certain that Norair does not just keep up with state-of-art, but that it is in a position to lead these assaults into the future.

He is well prepared for the task, holding advanced degrees from Stanford and Cal Tech. Before joining Norair he was group engineer in charge of systems studies at Rand, group engineer in charge of load analysis at Douglas, and a flight test engineering officer in the Navy during World War II. In his 11 years with Northrop he has constantly led the fight to advance our programs. As chief of Preliminary Design in 1957, he directed design and development work on the T-38A. Later he spearheaded the design and development efforts on the N-156, and has contributed a key role in the sale and development of the F-5 program. He is the author of many technical papers and holds several fighter aircraft design patents.

Aerospace Reporter:

We can all see the visible evidence of Technical organization activities in the T-38 and F-5 production lines, the X-21 flight test program, and the 707 production areas, but we are also interested in what is in store for Norair in the future. First of all, will we do things any differently than we are now doing?

Mr. Gasich:

In the broadest sense, no. Several years ago the Corporation was reorganized as a result of a very comprehensive analysis of the long range prospects of the industry in general, and North-

rop Corporation in particular. This reorganization changed our operational base from a confederation of specific product-oriented organizations to an integrated technology-based company. As a result, we have established the fundamental philosophy necessary to permit us to grow in a logical and orderly evolution, yet retain the flexibility needed to quickly adjust to new product opportunities. However, individual company elements might be significantly changed in their specific charters and procedures as a result of the changing customer environment.

Our president, Tom Jones, has said of Northrop Corporation that we are neither an aircraft

company, nor an electronics company, but that we are both a prime and a subcontractor—we are an advanced technology company. Because we are the systems management division of the Corporation, these words are particularly applicable to Norair.

In other words, if we can master the technologies, they will lead us to new product areas.

Aerospace Reporter:

You mentioned the changing customer environment. How has this influenced our planning and operations?

Mr. Gasich:

We should at the outset establish whom we mean when we speak of our customer. We have a significant amount of commercial business on our 707 subcontract work with Boeing, but our basic customer is the Government. Still, without regard to who the customer is, we must recognize that the aerospace industry is becoming more competitive with each passing year and this fact is being compounded by an increasingly more demanding customer. The evolving business posture of any company within the industry accordingly will be a reflection of how well that company's management is able to understand and evaluate the customer and his changing environment, and how well that management is able to imple-

ment its evaluation.

A thorough understanding of the market and the customer's needs and desires is of paramount importance. If a company cannot be responsive to the current procurement environment, it should not even bother to propose. For example, past procurements in the first generation ballistic missile era emphasized hardware development concurrency rather than cost, or even cost effectiveness. Concurrent development of the first ballistic missile systems was justified by the urgent need to get those weapons into the hands of operational groups. However, beginning in about 1961, the Air Force began to emphasize technology advancement, and the supremacy of schedule compliance as a procurement parameter began to diminish. Cost and management aspects of major procurements were just beginning to receive heavier consideration. Today, the importance of cost as an evaluation parameter has progressed to equal consideration with schedule compliance and technical performance.

Aerospace Reporter:

How do we cope with this environment and obtain new business for the Division?

Mr. Gasich:

The major aims of any corporation are to return a reasonable profit on investment and to continue company growth. In the aerospace industry, these objectives are achieved through successful administration of contracts and through submittal of winning proposals. Winning proposals in turn are based on realistic planning and introspective planning implementation.

New project or product planning is a continuous effort which starts even before the need for procurement is formally identified by the customer, and carries on through completion of the proposal effort. First, there is a careful evaluation of technology requirements, available company resources, company qualifications, and company reputation in the project area under consideration. The second step is the integration of research and development efforts to provide timely availability of technolog-

ical know-how. Third is the development of sales strategy. In the new business general effort, the sales plan is the key. It provides the necessary detailed guidance by establishing the requirements; other efforts are planned to properly support the strategy and timetable. Finally, a proposal effort is organized to successfully implement each particular business development plan. In order to better prepare ourselves for this new environment we have recently established the Advanced Program Development organization whose responsibility it is to integrate all of the facets of the Division that apply to a new product.

Aerospace Reporter:

Can you elaborate on our new business planning efforts?

Mr. Gasich:

Basically, new business planning can be considered to have three phases—long range, medium range, and short range.

Long range planning is mainly a technically-oriented effort constrained to developing general areas of technology. Long range planning must be sympathetic to the economic and political objectives of the government. Economic consideration such as gold flow, overall government budget plans, the effects of a tax cut, disarmament possibilities, local economic status, and national economic growth must be included. Results of studies of these considerations, together with the probable level of the defense spending, and the alternatives available to the government must be carefully sifted to arrive at realistic marketing objectives. At Norair this is done by Walt Fellers of the Long Range Planning organization.

Medium range planning is the association of specific technologies with specific projects. In this phase preliminary sales plans are developed for specific products, and the long range research and development plans in key technologies may be adjusted. Detailed customer contacts are begun, and we begin to identify the individual performance parameters of the various systems under development consideration by the government. Here we begin to weed out those general project areas or types which, because of their performance requirements and cost, will fall by the wayside. This aspect of the problem is handled by our Research and New Products Marketing organization.

Short range planning is a specifically-oriented marketing phase where detailed information is gathered and strategy developed for specific projects. Because the span of projects and work effort levels increase from the long range to the short range planning stages, short range planning includes a careful selectivity in appraisal of those programs which are to be pursued and those which should be abandoned. In this regard, cost effectiveness analysis is a favorite tool of the DOD in determining which of the many service programs will be given the go-ahead and which will be merely studied extensively or phased out at an early date. Norair cost effectiveness studies therefore are especially important during the medium range and short range planning efforts, and tradeoff studies performed during these phases contribute to the determination of short range marketing objectives. The contributors to

this part of the planning function are supported by our R&D and Marketing departments.

Aerospace Reporter:

What is the basis for establishing which research and development projects we will pursue?

Mr. Gasich:

Research and development efforts can be an expensive drain on the resources of the Company unless they are specifically oriented to improving knowledge and capabilities necessary to complete for our planned new business. Accordingly, three basic questions are answered with total objectivity before we establish and implement the research and development programs.

First, what are the realistic product areas in which the Company can be competitive? These areas must be carefully assessed for our capabilities as seen by the customer as well as for our capabilities as we see them.

Second, what is the actual business potential in the established product areas? Business potential here covers the nature and scope of potential procurement trends, and compatibility with the existing and projected company capabilities.

Finally, what is the sales strategy for success in each product area and in each business venture within each product area?

After positive answers to these three questions have been developed, overall research and development program objectives are established and individual projects are set up to provide the best possible support. Allocation of Company resources in pursuit of each research goal is accomplished by considering tradeoffs between alternatives. The relative importance of each effort is identified and confirmed with preliminary fund allocations.

After establishing the desired relative level of research and development effort, tradeoffs are made to determine those which are needed to support major new business efforts and which are clearly within Norair's current capability. In this evaluation, actual budget constraints are imposed to refine the desired program to one which realistically fits within the funding allocations available. Here, facility availability and capability is especially critical. Compromise usually must be made both in scope of investigations and in numbers of projects to be pursued. Budget constraints can be modified through associations with other companies and through application of marketing judgment as to which areas can be supplemented with funded contracts. The resultant program provides a total integrated research and development effort, and incidentally, a guide for research and development marketing efforts.

Aerospace Reporter:

You speak of research facilities as being critical. Can you give a few examples of what we have and how they are being used?

Mr. Gasich:

We are currently operating three wind tunnels that cover the whole spectrum of flight speeds. Our low speed tunnel has been proving extremely valuable in the VTOL area, and provides a continuously variable airspeed up to 440 feet per second—about 300 miles per hour. The supersonic and hypersonic tun-

(Continued on Page 5)

An Aerospace Reporter Interview

AREAS OF DIVISION EFFORT

(Continued from Preceding Page)



MR. GASICH: "The spectrum of flight speeds . . ."



ON VTOL—"Promising configurations . . ."



R&D AND PRODUCTION COSTS—"Lower than anticipated . . ."



LFC—"Early leadership resulted in contract . . ."

nels utilize the same compressed air storage system, and are of the blow-down type. The supersonic tunnel has a speed range of from Mach 1.5 to 5 and can handle a two-square-foot test section. The hypersonic tunnel ranges from Mach 6 to 14 and can simulate altitudes to over 175,000 feet. Obviously this capability is ideally suited for advanced vehicle research, including reentry types.

Our Flight Dynamics Research Laboratory has two simulators used to investigate advanced vehicle system flight controls. One is a two-degree-of-freedom fixed base unit with an analog computer to program the movements. The other has a similar computer arrangement but provides six-degree-of-freedom movement. These perform much of the pioneering work for VTOL research as well as function as experimental bases for space age vehicle control.

Our Structural Dynamics Research Laboratory is used for experimental investigations into flutter dynamics and other advanced structural problems involving fluctuating load conditions. These investigations take on added importance with the tremendous pressures to find new materials and design methods to meet the space age environments.

The Radar and Communications Laboratory is used to investigate advanced concepts in communications, tracking, and other areas of information transmission. In this laboratory our engineers can simulate complete electronics systems to test countermeasures, servicing problems, interface aspects, and a variety of other important technological items.

The Thermostructures Research Laboratory is designed to test structure designs and materials under extreme elevated temperatures. Our equipment here includes multichannel power control units, programmers, recorders, radiation panels, and shielding devices. This laboratory has been proving particularly useful in the quest for solutions to the reentry and high speed cruise systems.

Aerospace Reporter: How about people?

Mr. Gasich:

Now, when I say that we have research facilities which provide the basis for our technology projections, you must also remember that the equipment alone is useless without our capable people who plan for, and operate, the equipment.

More and more highly qualified people will be needed in our technical work because the nature of our products is becoming increasingly more complex. Production people are much more technically capable now than in the past, and our engineers find that they must continue to supplement their education to keep pace with technological progress.

Aerospace Reporter:

Are you satisfied that we have done a good job in planning our technological future?

Mr. Gasich:

Yes, but technical competence alone is not adequate for success in this day of highly complex and costly hardware. More and more the customer demands as-

urance that his contractual terms will be met, and he is enforcing these demands through incentive contracting. As a result, the rewards for top performance can be greater than those of the past, but heavy penalties also can be imposed for technical, schedule, or cost performance degradation. Accordingly, management—and especially management of the various contributing technologies—assumes significant importance.

Industry and the government have developed many modern program control techniques to help us do a better management job. You can read about these techniques in books and papers, but an academic knowledge of these techniques is not sufficient. It must be demonstrated that modern control methods are being used on programs actually being performed, and that they are clearly being used for program control and not for window dressing.

Aerospace Reporter:

To what new projects are our technical and managerial efforts being applied?

Mr. Gasich:

Now you are going to put me on the spot. Of course, some of our new projects are classified and others are extremely proprietary, but I'll cover a few which are representative of our work.

We have projects in work covering all military services, NASA, commercial subcontracting, and some foreign countries. These projects encompass airplane and missile systems, reentry vehicles, complete defensive systems, and unique technology applications.

For example, a significant breakthrough has been made in very high-lift supersonic wing design. This has enabled us to design a supersonic, carrier-compatible trainer and fighter aircraft family which could be an outstanding system for the Navy. Because this design concept is based upon our knowledge developed through the T-38 and F-5, we have been able to keep both R&D and production costs to a level below what would normally be anticipated.

The same high-lift wing concept is also being applied to a STOL version of the F-5, with the result an unusually flexible direct support fighter. This airplane can provide outstanding subsonic performance without sacrificing its supersonic capability. Again, because of its foundation in the T-38 and F-5, costs for production and operation of the STOL F-5 are very low. And beyond STOL aircraft we have several very promising VTOL configurations under refinement.

We have several significant tactical missile projects in house, both for the Air Force and the Navy. Work on these projects is nearing culmination after years of preparation. We expect to submit proposals for these systems early next fiscal year.

Another major area of effort closely associated with both aircraft and missile system technologies is that of hypersonic vehicles. We have taken a significant step in developing this business area when we were awarded the M-2/HL-10 glider design and construction project. This con-

tract provides another stepping stone in the expansion of Norair's Project HYLEAP. This project was organized specifically to conduct research on hypersonic lifting vehicles as part of our overall research effort on the reentry related vehicles. HYLEAP includes studies of aerodynamic vehicles, variable geometry configurations, control systems, load dynamics, stress analysis, trajectories, materials research, and recovery techniques.

As we continue our technological growth in these contributing technical disciplines we will be able to be competitive in future procurements either from a complete vehicle standpoint as a major airframe associate, or in a systems supporting position.

Applications of LFC to various types of aircraft and other vehicles continues to be a major area of new business effort. Early leadership in boundary layer control resulted in our X-21 contract. Knowledge gained on this project has provided a technological breakthrough in leading edge design for other subsonic aircraft. Subsonic applications of LFC can be projected to the next generation of long range, long endurance, and heavy logistic vehicles. Promising work is being accomplished in supersonic LFC research which could have an important impact on second generation supersonic transports.

Aerospace Reporter:

Can you summarize our technical activities?

Mr. Gasich:

We have evaluated the market, and we have identified the products which we believe the customer will procure and which are within our capability to provide. We have established the needed levels of company resource required for us to be competitive in winning contracts for these identified products and for effective contract performance after we have won the competition. We have planned realistic allocation of our resources and in nearly all cases we have acquired the necessary key personnel to guide our efforts. We have acquired or planned acquisition of all necessary facilities and we have received adequate funding to support our efforts. Finally, we have organized our people and our programs to expand the Norair business base as well as to maintain high performance on our existing programs.

The Norair Division is in sound financial condition and marketing projections indicate that we will continue to improve this position in the next few years. The future holds an encouraging promise of growth, but we cannot forget that there will be vigorous competition. The work will be demanding, but we are aware of what is required of our people and of our facilities, and we have organized to meet the challenge. Because our planning is based upon technologies and not a single product, the general trend for Norair inevitably will be growth. We will be successful because we have learned to adapt our technological knowledge to new and changing product opportunities. The successful implementation of these future programs will require the support of every organization and in a more fundamental sense of every individual in the Division.



RIDES WANTED

7 a.m. — 3:45 p.m.

BERYL & PACIFIC COAST HWY., Redondo Beach. Marion Fitzpatrick, 374-2398. 2

PRAIRIE & 182ND ST., Torrance. E. W. Moore, ext. 2006, 371-8167. 2

7:30 a.m. — 4:15 p.m.

IMPERIAL & HOOVER, Los Angeles. Eveninas only. Pauline Geiger, ext. 756. 3

BOLSA & EDWARDS, Huntington Beach. Norman M. Molde, ext. 4004, 897-9334. 3

8 a.m. — 4:45 p.m.

MARIPOSA AVE. & SHELDON, El Segundo. Violet Neuhoof, ext. 2753. 5

RIDES OFFERED

7:30 a.m. — 4:15 p.m.

BOLSA & EDWARDS, Huntington Beach. Norman M. Molde, ext. 4004, 897-9334.

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

FREEZER, Amana, still in crate, upright, frostfree, \$300. 428-2783. A

TIRES, 4, 7.50x14, black, tubeless, \$25. OS 6-2373. A

HONDA 50 parts, all or separately, \$45. YE 9-2860. A

CHEVROLET, 1954, stick, \$300. OR 1-1660. A

ROCKER, beige, swivel-type, \$30. 679-2983. A

FURNITURE, maple, hutch w/dropleaf, \$75; dining table & 5 chairs, \$40; coffee table, modern, \$30; divan, modern, 6', rust, \$75; refrigerator, Crosley, 8', \$25; range, O'Keefe & Merritt, aas, \$25. 679-1781 after 5:30 p.m. A

HOUSE, Palmdale, Desert View Highlands, 3-bdrm., 2-bath, fenced yd., GI loan, \$13,000. 325-3057. A

SLOOP, 26' Thunderbird, 1963, fully equipped, \$5500 or best offer. EX 1-1673. A

BEDS, Mel Eve Duo w/corner table, maple, 4 large drws. under beds w/mattresses, \$150; stereo, blonde Decca w/radio, \$100. PL 6-3025. A

AUTO SEATS, 2 rear, for Corvair Greenbrier, \$30; lawnmower & edger, Sears 18" power, both for \$100. FA 0-2862. A

TENOR SAX, Buescher, \$150; trumpet, Olds, \$75. FR 4-6003. A

AQUA LUNGS, 2 sets, U.S. Divers 2-stage & Voit sale, stage w/reserves, \$150; carbine & pistol, Ruqer .44 mags., pr. w/holster & cartridge belt, \$165; single shot, .410 w/vent, rib, \$29; Carcano w/custom stock, 7.35mm, \$29. 676-4251 after 5 p.m. A

LIMIT—ONE ITEM

LOT, single, Parkview, Inglewood Park Cemetery, \$600; rug & pad, 9'x15' oriental, \$40. TO 6-2022. A

TR-3, 1959 rdstr., r/h. new clutch, soft top, tonneau, \$1100 or best offer. FR 1-4704. A

YAMAHA, 1963, \$275. 371-8977 after 4 p.m. A

VOLKSWAGEN, 1963 2-dr. sedan, radio, 1500 cc ena., \$2000. WH 8-3974. A

DESK, metal, office, \$45; encyclopedias, set, World Scope, \$30; card table, 8-sided, \$45; rug, 9' x 12', wine, cotton, \$15. OS 6-2820. A

T-BIRD, 1960, all-powered, w/s/w. r/h, leather upholstery, \$1700. DA 4-5774. A

GO-KART, 2.5-hp Clinton ena., pneu. tires, apl. brakes, \$85. FR 1-4286 after 4 p.m. A

SUNBEAM Alpine, 1964, 5500 miles, \$2300. 676-5507. A

WASHER, Blackstone, auto., fully recon., stainless steel tub & top, \$100. 372-6755 after 5 p.m. A

DINING ROOM SET, walnut, \$100. 320-2715 after 5 p.m. weekdays. A

NASH Metropolitan, 1957, new tires, \$300; poodles, toy, AKC reg., black, 1-yr-old, \$75; beige, 6-mos-old, \$50. UN 4-7673. A

FOR SALE

STOVE, Chambers, 36" wide, white w/chrome top, \$35. OS 6-0049. A

TRAILER, teardrop, butane stove, ice box, lots of extras, \$185. OR 1-4623. A

STOVE, Magic Chef w/pull-out broiler, \$50. 671-1115. A

CAMERA, Honeywell Pentax f:2. 35mm, leather case, lightmeter, \$150. 371-5391. A

T-BIRD, 1959, conv., full power, \$1095 or best offer. 329-3172. A

DIYAN, Nauvahyde, 6', \$100; kitchenette set, 4 chairs, \$50. DA 9-7447, after 5 p.m. A

MOVIE CAMERA, Yashica 8, 8mm, zoom lens, case, \$35. 371-1362. A

TRAILER, box, 4'x7' w/canvas cover, 6-ply tires, \$60; saw, Shop-Smith elec. w/accessories, \$125. FR 2-0101. A

TYPEWRITER, Remington port., \$15; reed oran., \$150; roll-away beds, sal., \$10; dbl., \$15; heat lamp, \$5; generator, \$5; barbecue, 24" w/motor, \$15; chairs, \$5 ea.; heater, lae, elec. w/thermostat, \$15; other misc. items. 372-4907. A

CHEVROLET, 1959 Bel Air, 2-dr., V-8, \$695. FA 1-5230. A

PATIO FURNISHINGS, chaise longue, brazier, chairs, table & umbrella, dishes, \$25. AX 1-2305. A

CHEVROLET, 1961 Impala 2-dr., 1962 409-hp ena., 4-spd. trans., many extras, \$1925 or best offer. OS 6-2948. A

CHEVROLET, 1948, \$100. PL 5-7521. A

TRAVEL TRAILER, Boles-Zenith, 16' w/o/head dbl. bed, compl. self-contained, many extras, \$1695. GA 7-8553. A

BIRD CAGE, floor length, white & gold, \$8. OS 9-0901. A

PONTIAC Ventura, 1961 sports coupe, auto., p/s, p/b, \$1950. 676-9627. A

PHOTO ENLARGER, 2 1/4 x 3 1/4, condenser-type, 50mm lens, \$25. FR 9-3134. A

DE SOTO, 1950 4-dr. sedan, rebuilt ena., needs front wheels & brake drums, \$65. 398-7417. A

KITTENS, 2, female Siamese, 8-wks-old, \$20. 714-521-0416. A

RANGE, Wedgewood Monterey, aas, \$60; window shades, glare-proof, \$1.50 ea.; washer, Norge, auto., \$20; lamp, McCall, Desert Aire, \$20; refrigerator, \$25; radio, console, \$10; couch, makes into bed, \$50; piano bench, \$5; bicycle, girl's, 24" Schwinn, \$20; drapes, light beige, \$40; record player, 3-spd. port. elec., \$30. AX 4-4325. A

SHORT BLOCK, Ford, 427, compl. w/head & valve train, o/haul aasket set, oil pump, \$600. FR 7-3487. A

HOUSE, 1-bdrm., stucco, in Lawndale, carport, fenced yd., 7-yrs-old, \$6900. TE 3-2512. A

YEARBOOKS, 20, for Encyclopedia Britannica, 1945-1964 incl., \$75. CR 4-3688. A

SKI BOAT, Fantasy, 16' 3-pt. hydroplane, 75-hp Evinrude, trailer, large-wheel, \$1195. 377-2101. A

RANGE, O'Keefe & Merritt apt-size, aas, \$40; manale iron, \$25. 831-9589. A

SAILING SLOOP, 13', fiberglass, Dacron sails, stainless rigging, trailer, \$650. FR 5-1282. A

MGA roadster, 1958, new ena. & clutch, top & side curtains, leather int. restored, \$800; tape recorder, trans. port., \$20. 670-8993. A

FORD Fairlane 500, 1959, p/s, auto, trans., new ena., tires, \$950. 676-6394 after 4:30 p.m. A

HOUSE, Hollywood Riviera, 3-bdrm., 2-bath, built-ins, landscaped, near school & park, \$32,950. FR 8-1420. A

BOWLING MACHINE, Clover's shuffle ally, \$55. PL 5-7411. A

ACREAGE, Antelope Valley, 20 near Willow Springs, \$395 acre; 10 near Rosamond, \$445 acre, terms. FR 8-1026. A

TENOR SAXOPHONE w/case, \$125. DA 4-2075 after 5:30 p.m. A

FORD Country Sedan, 1958, V-8, p/s, o/b, r/h, \$895. FR 6-1395. A

RANGE, aas, apt-size, \$5; lumber, top grade, 2x6, 1x6, 2x4, 4x8, different lengths, 6' ft. & up. FR 9-3294. A

RADIO for Volkswagen, custom deluxe, all trans., pushbutton w/antenn., \$46.50. OR 2-8014. A

AMBASSADOR, 1962 4-dr., 270-hp, fact. air cond., full power, \$1875. DA 9-4576 after 5 p.m. A

PLAYER PIANO, orig. finish, many rolls, \$300. DA 7-0304. A

STEREO SYSTEM, Fisher 100 B tuner, Eico amp., 70-W; tape recorder, Roberts 770 AR-2 speakers, all components 3 to 8 mos-old, \$1100; Oldsmobile, 1954, p/b, p/s, \$50. 291-2784. A

CHEVROLET, 1956 Bel Air 4-dr. sedan, \$295. FA 8-4188. A

CAMERA, Revere, 8mm, Norwood director light meter, \$35; freight train, Lionel diesel, on board, 2-w transformer, std. size ena., extra track, \$40; bowling ball, men's, Brunswick, \$5. OS 5-3820. A

HOUSE, 4-bdrm., family room, 2 fireplaces, pool, view, walk to schools, \$39,000. 375-4846. A

RADIO, Delmonico, AM-FM, \$15; vacuum Electrofax, \$10; washer, Kenmore, auto., 4-yrs-old, \$50; hand vibrator, \$5. 370-4444. A

CHEVROLET, 1955 station wagon, 4-dr., Powerglide, 283 cu. in. V-8, good tires, new p/b, \$375 or best offer. OR 3-1913 after 5 p.m. A



THE GENERAL SAFETY COMMITTEE—Norair men who keep constant watch on safe work conditions throughout the plant take time out for photograph during presentation of Wise Owl Club award, the 67th for the Division. John Breneman, manager, night Operations and chairman, center, presents eye-saving certificate to William Williams, Quality Control (dark glasses). Committee members and guests are from left, seated, Royal Jackman, Harold Roth, Lee Johnson, Pete Moss, Hawthorne Fire Chief Robert Hartzell, and P. W. "Bill" Parker. From left, standing, Dale Steen, E. D. Kinsey, Tom Chittenden, Robert Howorth, Vern de Camp, L. H. Puder, E. E. Nickles, Roy Prueter, Dr. Richard Krebsbach, Ed Bates, George Putnam, Leo Sacks, William Minner, and Al Carr. General Safety committee meets once each month. Feature topic of the day was introduced by Chief Hartzell. Mr. Williams "earned" Wise Owl via motorcycle accident in which glasses are credited with preventing almost certain-to-be-serious eye injury.

FOR SALE

MOVIE OUTFIT, Wittnauer, compl., camera converts into proj., \$250; amplifier, stereo, Eico 2036 classic, 36-watt, \$75. 399-5448. A

OLDSMOBILE 98 Holiday, 1956, full power, orig., \$399. DA 3-4900. A

BREAKFAST SET, 4 chairs & table, chrome, \$18; tea cart, \$5; dishwasher, GE Mobile Maid, 1-yr-old, \$85; TV set, port. 17" Silver Tone w/stand, \$35. ME 3-2395. A

SANDER, orbital & inline action, \$12; air compressor, port. w/spray gun & tank, \$50; washer-dryer comb., aas, \$125. FR 8-3990. A

HOME, Colonial-type, 3-bdrm., 1 1/2-bath, drapes, built-ins, flagstone patio, lae, family room w/fireplace, open beams & bar, 2-car gar., 1650 sq. ft., no. of Wilmington, \$26,500. TE 5-2356. A

HOUSE, 3-bdrm., cpts., drapes, built-ins, disp., near schools & shopping areas, 15 min. to Northrop, \$19,950. 376-9704. A

WRISTWATCH, Le Coutre, man's gold alarm, \$65. OS 5-7729. A

CORVAIR Monza, 1961, 1-owner, r/h, w/s/w, automatic, \$1150; Mercury, 1954, std. shift, p/b, new ena., tires, \$375 or best offer; drum table, mahoqany, \$8. 672-2091. A

PORSCHE 1500 super coupe, 1955, 9000 miles since o/haul of ena. & trans., \$1295; camera, Rolleicord, leather case, \$50. GL 7-2949. A

FORD, 1957, auto, trans., r/h, \$300. OS 5-4333. A

WATER HEATER, 40-gal., heater, wall-type, 19,600 btu, \$30 ea. OS 5-3423 after 8 p.m. A

T-BIRD, 1960, all-powered, air cond., w/s/w, r/h, \$1850. Box 801. A

DAVENPORT, 7' \$65; sectional, 3-pc. modern, \$95; dining table, dropleaf, 6 chairs & china closet, \$135; twin beds, 7' w/mattresses, box springs, night stand, \$85; chest, \$30, all maple; washer, Blackstone, \$15; ext. ladder, 24' alum., \$18; TV & record player cabinet, maple, \$30. GR 2-2352. A

TAPE RECORDER, Wollensak, stereo, 4-track, \$99; TV, 21", mahoqany, \$20. NE 8-7463 or Box 802. A

CAMPING TRAILER, 10', wood, butane stove, ice box, \$100. PL 9-4920 from 4-5:30 p.m. A

REFRIGERATOR, Servel, 2-dr., 13 cu. ft., \$75. 672-8788 after 5 p.m. A

SWIMMING POOL, 15' dia., 3 1/2' deep, \$60; pump & filter, hvv. duty, \$70; ladder, \$16; vacuum w/ext. handle & 25' hose, \$25; test kit & lae. box Chem-Guard, \$4. DA 3-6717. A

LAND, 10 acres, Salton Sea, level, near Hwy. 99, \$2900 or terms. FR 1-3781. A

DRUM SET, complete, \$160. FR 2-0540. A

FURNITURE, 3 rooms complete, all or part, \$500; refrigerator, 15 7/8" Admiral, \$225; washer & dryer, Whirlpool deluxe, \$125 & \$75. OS 9-0931. A

FORD sedan, 1957, stick shift, 411 rear end, hvv-duty shocks, new trans., \$400; Boy Scout outfit, complete, fits 12-16-yr-old, \$10. PL 6-5720 after 3 p.m. A

RUNABOUT, 15', 35-hp Evinrude, trailer & access., \$325. 835-9486. A

REFRIGERATOR-Freezer, Kelvinator Food-arama, 18 cu. ft., \$200. 828-0096. A

Reservations In Order For Hawaiian Holiday

Deposits are now in order for reservations on Northrop Corporation's annual Hawaiian Holiday trip, it has been announced by Dave Carney, NRC past president and Travel Club commissioner.

Total cost of the affair will be \$358 for nine days in the Islands. Departure has been set for Thursday, December 24, with return Sunday, January 3.

Deposits are \$50, and Dave suggests a \$11 weekly Credit Union deduction, starting now, should make the balance easy.

Flight will be on Pan American World Airways jet airliner, destination Hilo.

WANTED TO BUY

PIANO, baby grand, well-known make, FR 4-5028. B

FILE CABINET, 2-dwr., letter-size, tan color preferred, 377-5862. B

PROJECTOR, 35mm slide, screen, ME 0-2475. B

DICTIONARY, Webster International-Unauthorized, second ed., copyright 1958 or later, PL 6-8413. B

FREE

KITTENS, 6-wks-old, OR 1-1020. D

RENTALS OFFERED

APT, unfurn., lge., 2-bdrm., pool, patio, all extras closed aar., \$115 up, DA 9-5986, DA 3-1946 after 4:30 p.m. E

HOUSE, 3-bdrm., 1 1/2-bath, built-ins, cpts., drapes, patio, pvt. aar., near Northrop, children ok, \$160. OS 5-7938. E

APTS, 2-bdrm., 1 or 2-bath, elec., built-ins, cpts., drapes, aar., 11 blocks from Kina Harbor, \$125 & up. FR 4-4805. E

APTS, 1 & 2-bdrm., furn., pool, golf course, recreation rm., maid service, walking distance to Northrop from \$135. OS 5-2444. E

APTS, 2-bdrm., 2-bath, 1-bdrm., Gold Medallion, rad. heat, disposal, dishwasher, metered washer & dryer, near schools, etc., from \$110 mo. FR 2-0448. E

HOUSE, 2-bdrm., after June 5, unfurn., in Gardena, \$90 mo. Box 803. E

CABIN, Lake Greary, sleeps 6, make res., vacs. or weekly, \$60 wk. EX 1-2040. E

APT, studio, 2-bdrm., 2 1/2-bath, 1400 sq. ft., in Inglewood, \$190 mo. 373-1143. E

APT, 1-bdrm., walk to stores, beach, water pd., disp., unfurn., Manhattan Beach, \$110 mo. FR 4-3365. E

CHALET, A-frame, Mammoth Mtn. Lakes, 6-bdrm., 2-bath, sleeps 18, fireplace, sun deck compl. furn., June-Oct., \$125 wk. TH 2-8205 evenings. E

Some of the highlights:

A picnic planned for Kala-pana Black Sand Beach; a drive to the Hawaii National Park for Christmas dinner at the Volcano House; plus a good look at the Kilauea Crater, Halemaumau Firepit, Lava Tubes, and Tree Fern Forest.

There is also a trip to the Kona Coast with lodgings at Kona Hukilau Hotel. A luxury yacht will take members to Captain Cook's Monument. There will also be a Hawaiian feast with music and entertainment.

Among other attractions are Lahaina-lao Valley, Waikiki Beach, and a New Year's Eve celebration.

RENTALS OFFERED

APTS, all elec., drapes, cpts., built-ins, closed aar., water & trash pd., 20 min. to Northrop, 1-bdrm., \$110; 2-bdrm., 2-bath, \$145. 371-6168. E

APT, lae, 2-bdrm., unfurn., 1 1/2 baths, tub encl., disp., laundry fac., 10 min. to Northrop, \$97.50 mo. PL 5-6030. E

HOUSE, 2-bdrm., unfurn., near Vermont & Florence, \$85 mo. PL 7-7911. E

APT, 3-bdrm., cpts., drapes, bar, built-ins, near Northrop, schools, shopping area, \$175. 676-3028. E

APT, 2-bdrm., cpts., built-ins, aarbaae disp., newly redecorated, children ok, aarbaae, \$100 mo. FR 2-0149. E

APT, 2-bdrm., lower, newly decorated, close to Paramount, disp., built-ins, carport, \$80 mo. ME 4-3246 after 5 p.m. E

APT, furn., sal., patio, Manhattan Beach, \$70 mo. FR 9-2631. E

APT, 2-bdrm., 2 children ok, 20 min. from Northrop, disp., carport, laundry room, \$90. 635-3784 after 6 p.m. E

APTS, unfurn., 2-bdrm., cpts., drapes, built-ins, close to Northrop, \$120 mo. & up. OS 6-3090. E

APT, to share w/young man, 4-room & bath, furn., Manhattan Beach, \$80 mo. incl. utilities. FR 2-4535. E

CABIN, Green Valley Lake, sleeps 12, \$60 wk. 324-5961. E

APT, 2-bdrm., 1 1/2-bath, unfurn., cpts., drapes, Playa Del Rey, \$135 & \$150 mo. 391-0804 after 5:30 p.m. E

RENTALS WANTED

SKI BOAT to lease for weekends or entire season. FR 7-3810. F

PERSONAL

FLYING to San Francisco, Livermore area, June 12-14 & Ohio, July 3-13, need riders, est. round trips, \$12 & \$100 respectively. 397-6326. L

WILL transport auto. to Washington, D.C. area 2nd week in July, reasonably. Box 804. L

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

• Wednesday, June 17, 1964

HAWTHORNE

EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

Shah Has High Praise For F-5 Fighter



ROYALTY AND THE F-5—The Shah of Iran spent an hour in an F-5B last Wednesday, personally piloting the supersonic airplane through Southland skies. When the flight was completed and he stepped down from the cockpit he was interviewed by Charles Hillinger, staff writer, Los Angeles Times. Lavish in his praise of the fighter he stated to Mr. Hillinger, "It's a wonderful plane. Our boys are going to love it. I am sure American Air Force men are proud of it. There is no limit as to what it will do. It has fantastic climb, maneuverability, rate of descent . . ." In a ceremony after the F-5 flight, Northrop President Thomas V. Jones presented the Shah with a checkout plaque to mark the event. Accompanying the Shah on the demonstration was Major James Wood, Edwards Air Force Base. "The Shah is a great pilot," said Major Wood, emphasizing that the monarch handled the plane throughout—from takeoff to touchdown. The flight took place at the Airesearch facility, International Airport.

Page Completes Initial Phase of Bahama System

Page Communications Engineers, Washington, D.C., subsidiary of the Northrop Corporation, has completed the first phase of a 3.5 million dollar telecommunications system for the Bahama Islands.

The first phase of the combined troposcatter, microwave and very high frequency system installed by Page for the Department of Telecommunications of the Government of the Bahamas links Nassau, New Providence Island, and the fast growing resort and commercial areas of Freeport and West End on Grand Bahama Island.

A second phase to be completed shortly after the first, links Andros Island with Nassau and

the United States mainland, and provides the U.S. Navy Atlantic Underwater Test Facility and Evaluation Center Base with expanded communications service.

The first phase of the Bahamas Telecommunications System was declared officially open by the Premier of the Bahama Islands, the Honorable Sir Roland Symonette, at dedication ceremonies held recently in Freeport, Grand Bahama Island.

Attending the ceremonies at the official invitation of the Government of the Bahamas was Page President Joseph A. Waldschmitt, who presented the Premier with a brass plaque to commemorate the opening.

TECHNOLOGY, QUALITY, COST, KEYS TO FUTURE

MANAGEMENT CLUB HEARS PROGRESS REPORT

The Northrop Norair Management Club with a packed house at the Airport Marina Hotel heard Welko Gasich, Division vice-president and assistant general manager, Technical, call for cost effectiveness, a forward position of technical excellence and unsurpassed quality as the most potent factors in assuring a full shop for Norair Division.

Mr. Gasich filled in as featured speaker at the Club's regular bimonthly meeting for General Manager Dick Horner who had been called away suddenly.

Honored guests for the evening led by Dr. Wm. F. Ballhaus, Corporate executive vice-president, included Lt. Colonel Charles W. Clark, Northrop Air Force plant representative; Robert R. Miller, Corporate senior vice-president; William Larrabee, Corporate vice-president, Legal; Bob Lloyd, vice-president and assistant general manager, Operations, Norair; and R. P. Jackson, vice-president and assistant general manager, NSL.

Mug-of-the-Month was awarded to Northrop Credit Union Treasurer Walter T. Gage, fourth man in the Company in years service. Presentation was made by Ben Trump, chief, Education and Compensation.

Recalling that he had just seen his views on the aerospace future and Norair progress published via an Aerospace Reporter interview in the Northrop Norair News two days before, Mr. Gasich presented a detailed "state of affairs" report that covered all phases of activity.

Highlights of his talk:

The F-5—great possibilities. More MAP and friendly nation sales due shortly.

The F-5B—a 14-nation 12-man overseas demonstration junket being led by Dan Darnell, manager, Customer Relations, now under way.

VTOL—four years research is paying off in excellent designs that point strongly toward new business in direct support aircraft.

LFC—leadership in the field backed by years of research brought us the X-21 contract, and now again brings in the new joint USAF-FAA-NASA contract for supersonic studies. (See story this page).

T-38—new wing developments make the trainer a top performer in the low end of the speed spectrum and therefore suitable for U.S. Navy carrier work . . . The USAF need for the T-38 trainer continues to grow as pilot training is stepped up.

STOL—developments on the F-5 due to give the fighter short field, limited war suitability, still retaining supersonic speed.

Missiles—we are active in tactical missiles.

T-38—commercial airlines are interested in the T-38 as a trainer for their jet transport pilots.

The next decade will be a crucial one for defense-oriented companies, Mr. Gasich said. Performance standards are going up from year to year. Competition is keener than ever before. And with fewer systems being built, the Department of Defense contract pie is being sliced into fewer segments.

The answer lies with the excellence of performance of the Division team, Mr. Gasich said. There will be no room for "fat."

Lean, hard-hitting companies will prevail.

An especially honored guest for the evening was Junior Achievement Manufacturing vice-president from Downey, Charles Swan.

Charles was winner of the Management Club all expense paid trip to the J-A national finals at Indiana University.

Also honored for their long years of Junior Achievement support were Norair program advisors Jack Miller, Mose DeMasters, Rolly Pontious, Mary Delaney, Oliver Larson, Jim Crase, Charles Roth, and Enoch Norbom. Presentation of service awards was made by Tom Brazil, Management Club Junior Achievement coordinator.

Three-Agency Contract for LFC Supersonic Research

Northrop Corporation has been awarded a three-agency \$727,000 project to study application of the friction drag-reducing Lami-

nar Flow Control principle to supersonic aircraft.

Navy Awards Polaris Flag To Nortronics

The U.S. Navy presented a Polaris flag to Northrop Corporation's Nortronics Division last week as "a token of appreciation for outstanding performance on the Polaris team."

Presenting the flag, Commander Don D. Foulds of the Navy's Special Projects office described it as "a badge of membership in a unique and vital team dedicated to the defense of our country and the preservation of peace." Commander Foulds added that the Navy does not give the flag to companies as such, but rather to the engineers and technicians who design and produce equipment for Polaris submarines.

Accepting the flag, Nortronics Division Vice-president Frank W. Lynch said.

"Our contribution to the Polaris program has been our DATICO equipment. (Datico stands for Digital Automatic Tape Intelligence Checkout.) Designed, developed and produced right here, these high precision electronic units continuously verify the missiles' readiness to perform, and give them the 'green light' to fire. We are especially proud and happy that—while our original contract called for just one unit—this unit performed so well that its successors are now aboard all Polaris subs. We are

The contract is administered by the Air Force Flight Dynamics Laboratory, Research and Technology Division of the U.S. Air Force Systems Command, but is funded by the Air Force, the National Aeronautics and Space Administration and the Federal Aviation Agency. The work is being performed by Northrop's Norair Division.

The two-year supersonic LFC research program includes investigation of slotted wing configurations to determine the effects of shock waves, wing sweep angles and acoustic disturbances on laminar flow. The studies will also determine to what degree sonic boom intensity can be reduced by flight profile variations possible with supersonic LFC designs.

Wind tunnel tests in support of these objectives will be conducted at velocities up to Mach 3.5.

The tests will include wings swept in front of and behind the Mach cone, or supersonic shock wave.

Previous Northrop research indicates that LFC can greatly reduce friction drag on supersonic aircraft. The wings of LFC aircraft are equipped with extremely fine slots running from fuselage to wingtip. Compressors suck a small amount of air through the slots and into inner-wing ducts, then expel it to the rear. This stabilizes the boundary layer and results in laminar flow over the wing.

equally proud that our Nortronics Division plants in Needham Heights and Norwood, Massachusetts, have also been designated to receive Polaris flags."

Youth on the Move

Some 50 local high school boys are getting the jump on a career in the aerospace industry through participation in Special Interest Explorer Posts sponsored by Northrop Norair.

There are two such posts at this Division, one being oriented toward science, the other to manufacturing.

We speak today of the science area.

Known officially as the Aerospace Science and Engineering

engaged in budget analyst work at Nortronics ES&E. When I asked Mike, who is 17 and a senior at Morningside High School, why he was attracted to the Explorer Post, he said that he wanted to see the aerospace industry from the inside. He stated, "Both my dad and mother have been members of the Northrop personnel and I thought I would like to see for myself what makes Northrop tick from within."

By John B. Clark

Norair Director, Industrial Relations

Explorer Post 173X, our young scientists meet twice a month at the Hawthorne plant to work on special projects of their own interest and choosing. They are aided by a total of 16 advisors drawn from the supervisory and specialist level of various scientific and engineering sections in the Company.

The post was organized in April 1963 at the instigation of Northrop Norair management.



Tom McCarthy, Norair manager of Administration, played a leading role in the formation of the post. The major aim then as now was the development and encourage-

ment of special talent and interest in boys who show promise in fields encompassed by Northrop technologies.

"We feel our efforts amount to 'character building' in a professional sense," explains Charles W. Eyres, assistant to the vice-president and assistant general manager-Technical, and chairman of the Explorer Post. "More than just giving these boys something to do in their off-hours, as a hobby or recreation, we are providing them experience in advanced subjects that, we hope, will spur them on and help them in their chosen careers," Mr. Eyres added.

Well along among the existing projects is the joint development of a wind tunnel and an airplane model for testing. The boys in this group have completed drawings for the wind tunnel, which is now being built according to their design in the Norair Model shop.

Still another group is nearing success in its development of a ground effects machine, a down-draft air-thrust device known as a GEM that can be made to hover a few inches off the ground. Using an air compressor donated by the Division's LFC group, the boys will have a GEM eight feet in diameter when completed.

With equipment purchased for \$100 from the Scientific Instrument Company, a third group has built and is now operating an experimental gas laser worth well over \$1000, according to estimates.

The fourth group, concentrating on exploring applications of an IBM 1620 computer, is doing just that with the extensive equipment and advice of personnel from the Corporate Data Processing department located at Northrop Norair.

One of the participants is Mike Parker whose mother has been with Northrop for over five and a half years, now currently

So absorbed are the explorers of Post 173X in their progress on these projects, it is of only incidental interest to them that the group is a fine example of racial integration and the compatible mixing of minority elements. Approximately 20 boys represent the predominant minority groups of the area, including Mexican-American, Nisei, and Negro.

This mix is reflected to a degree in the officers of the post who are elected by the boys themselves. Rick Villa, Leuzinger High School, is president; Mike Parker, Morningside, vice-president; Tosh Dojiri, Leuzinger, secretary; and Al Appel, Morningside, treasurer.

Still another program offered the scouts is the course in Industrial Management which is headed by Ed Nolan, general supervisor in organization 5610, ably assisted by Bob Bagby of Program Planning and Leonard Kissel of Materiel. This Nolan and company effort is designed to assist the young men in determining their future careers by giving them the opportunity to view the inner workings of industry.

From Chairman Eyres we learn that one of the most cooperative local educators who proved very helpful in the establishment of the Post was vice-principal of Morningside High School, David Reiss. Mr. Reiss was kind enough to express himself as follows:

"You are doing two things. You are providing stimulation for those students who have the aptitude and the desire to enter the engineering and scientific profession. Secondly, in a nice way you are proving to other students that an engineering/scientific career is perhaps not their cup of tea. In this manner, you are helping the schools mold career development."

With kids like these, our leading citizens of tomorrow, we old fogies can stop worrying about America's future. In the capable hands of fine young men like Mike Parker and his fellow aerospace explorers there is little for us to fear.



BENJAMIN F. COLLINS

Dollar Watching and Safety



SAFETY ADDS TO PROFITS—Paul H. Crews, assistant director, Norair Industrial Relations an honored guest, addresses Management Seminar luncheon of Greater Los Angeles Chapter, National Safety Council tying profits to a safe operation and outlining Division 1964 drive for blue ribbon honors in 1964. Meeting was attended by members of management safety officials from Southland industry. Theme was "Dollar Watching" and "Vacation Safety." Lee Johnson, chief engineer, is seated second from right.

Government Contractors Exceed Small Business Program Needs

Small Business Administrator Eugene P. Foley has announced that 28 of the Government's largest contractors have gone far beyond legal requirements in expanding their subcontracts with

small firms.

He disclosed they have awarded more than \$9.4 million in Government procurement work to small businesses under the cooperative, industry-wide subcon-

tracting program inaugurated last year by the Small Business Administration.

SBA also announced that Northrop is one of the large firms joining in SBA's subcontracting program. The other firms include Westinghouse Electric Corporation, American Telephone and Telegraph Company, American Machine and Foundry Corporation, Avco Corporation, Bendix Corporation, Boeing Company, Douglas Aircraft Company, Ford Motor Company, General Dynamics Corporation, General Electric Company.

Procurement regulations require that prime contractors establish small business subcontracting programs on all their government contracts exceeding \$1 million, and on all subcontracts exceeding \$500,000.

Administrator Foley explained that when these procurement rules went into effect, SBA approached major contractors to request their cooperation in going beyond these bare minimums in order to insure increased subcontracting opportunities for small business.

"As a result," Mr. Foley said, "28 of the Government's biggest contractors agreed with SBA's plan and have fully cooperated in the new subcontracting program. They actively seek small business sources of supply from SBA and from military contracting officers without regard to dollar limits of their prime contracts. In this way they help to provide many smaller firms with the most practical way to share in Government work."

Key Appointments Made In Technical, Marketing

Two key appointments in management high-level categories have been announced by Welko Gasich, vice-president and assistant general manager, Technical.

The first assignment was that of Jack J. Marcinek, formerly technical assistant to Mr. Gasich to acting director of the Missile Marketing section. Mr. Marcinek will also continue as deputy manager of Research and Development concentrating primarily on the missile field. In the former activity, he will report to C. R. "Bob" Gates, Marketing manager. For R&D he will be deputy to D. D. Warner, manager, Research and Development.

The second announcement was that Benjamin F. Collins, jr., had joined Norair as a special assistant to the vice-president and assistant general manager, Technical.

Mr. Collins will undertake technical assignments and provide staff assistance with particular emphasis on the Division's manned aircraft activities for the U.S. Navy, Mr. Gasich said.

Mr. Marcinek, prior to becoming associated with Northrop in October 1963, was director of research and engineering for the Aerospace Division of Walter Kidde and Company of New Jersey. He also served for 11 years, 1951 through 1962, as chief of Advanced Programs at the Pomona Division of General Dynamics Corporation.

Mr. Marcinek was educated at the Stevens Institute of Technology where he holds a master of science degree achieved in January 1951. He received his bachelor of science, mechanical engineering, from Lehigh University in 1949 with honors. He also attended New York University

doing course work, the California Institute of Technology and the University of California in engineering management studies.

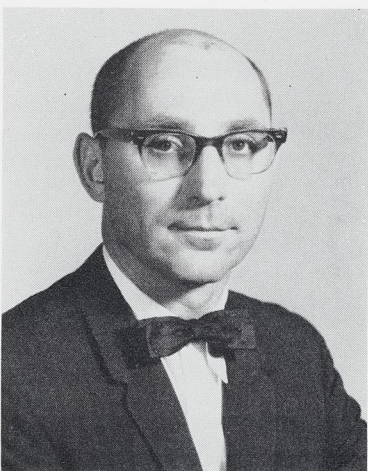
He is a senior member of the Institute of Electrical and Electronics Engineers and associate fellow of the American Institute of Aeronautics and Astronautics.

Mr. Collins came to Northrop with 18 years service beginning in 1946 at the Long Beach Division of Douglas Aircraft Company where he held the position of A-4 Program manager.

He was educated at the University of Washington in civil engineering and business administration.

Mr. Collins served in the U.S. Navy in the rank of lieutenant commander. During the war from 1942 to 1946 he was officer in charge of technical air intelligence in the Southwest Pacific area. He was a member of the Japanese occupation forces working in the post-conflict disposition of Japanese army, navy, and air forces.

He is a member of the AIAA, Audio Engineering Society, and the U.S. Naval Institute.



JACK J. MARCINEK

NORTHROP NORAIR NEWS

VOL. 22 NO. 9

3901 W. Broadway, Hawthorne, Calif. 90250

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NORAIR DIVISION Published every other Wednesday

CHARLES BRADFORD, Editor

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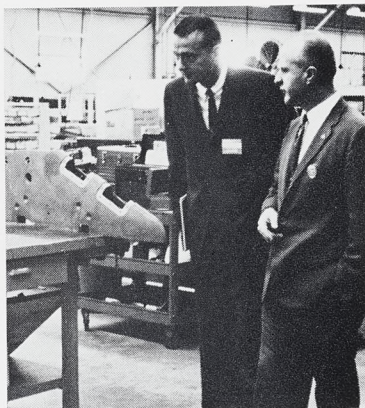
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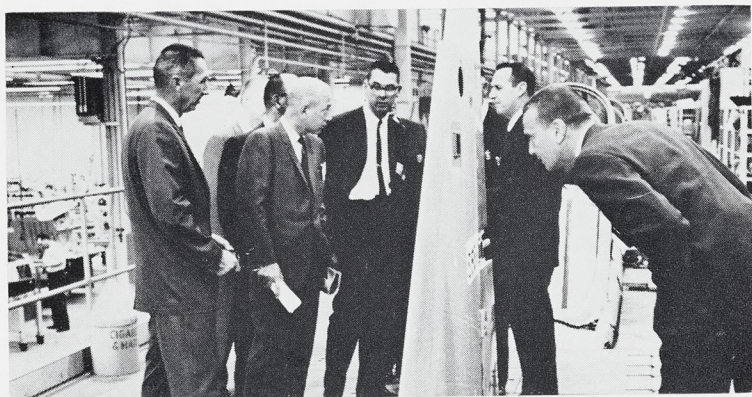
INDUSTRY VISITORS—Aerospace management men upon completion of executive development series at UCLA, visit Norair and are greeted by fellow seminar participant and host for the day Thomas L. McCarthy, manager, Administration, standing left center. Group met to engage in detailed discussions of long range planning techniques, new business directions, and program methodology. Highlight of the meeting was tour of Manufacturing's T-38 and F-5 twin overhead rail assembly lines.



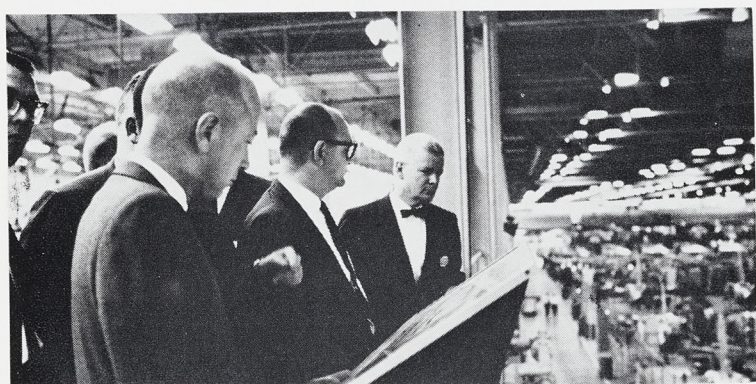
PRODUCTION—Here visitors M. A. Sulkin, assistant to the vice-president of Research and Development, North American Aviation, and I. B. Jenkins, manager, Manufacturing and Materials, Radio Corporation of America, are briefed on Norair's electrical assembly flow by Al Carr, superintendent, T-38/F-5 Forward Fuselage, Wing and Aft Assembly Operations.



SKILLS—Walt Fellers, director, Norair Long Range Planning, at right, and Dr. E. H. Erath, scientific consultant, Electronics Investment Management Corporation, view subassembly operations. Session served as overall management idea exchange and to relate aerospace capabilities with coming national needs, both for defense and commercial pursuits.



THE T-38—From left are Norair's Carl Yates, chief, Manufacturing Control and Mr. Fellers; Mr. Sulkin, N. T. Weiler, deputy director, Advance Programs, Douglas Aircraft Company; T. K. Glennan, jr., Economics department, The RAND Corporation; Mr. McCarthy, and Dr. Erath. Also acting as Norair hosts were Milt Kuska, deputy assistant general manager, Technical; George Schnug, assistant to manager, Manufacturing and Materiel; and R. W. Rolfe, director, Management Services.



ASSEMBLY LINE—Morwick Ross, Norair Long Range Planning, right, points out factory innovations that help promote cost effectiveness, quality and schedule on the T-38/F-5 programs. In the foreground, Mr. Glennan, Mr. Weiler, and Mr. Sulkin. Program management was topic of high interest. Discussion in detail covered the cost and results factors to be expected from autonomous projects, functional organizations, program manager overlay techniques, and "Czar" crash efforts. Morning was devoted to conference. Plant tour took place in the afternoon.

NORAIR "C" STAMP PROGRAM ASSISTS COST AND SCHEDULE

Norair's F-5 and T-38 "C" stamp small business vendor program has been of marked assistance to cost and schedules on the fighter and the trainer as these airplanes come off the Hawthorne and Palmdale production lines. It has been jointly announced by Bob Catlin, manager, Quality Control and Carl Hood, director, Materiel.

The "C" stamp procedure is one in which qualified suppliers by participating directly in the factory program become as an extra arm, actually an extension of the Norair manufacturing capability. By permitting the "C" stamp vendor, presently only those in the special process technologies—platings, coatings—to perform their own inspection, assembly line management gets a schedule safety valve and parts flow short cut when they most need it. It is especially welcome when any faltering due to lack of parts could mean thousands of dollars in extra costs, not to mention contract commitments jeopardized.

"Vendor performance under the "C" stamp plan has been outstanding," said Mr. Catlin and Mr. Hood. "The efforts of the special process suppliers in assuring continuous quality of parts provided under extremely fast reaction time, has helped the Division keep both airplanes on time and on budget while maintaining standards of workmanship entirely pleasing to the customer. We wish to thank the "C" stamp firms wholeheartedly."

With the majority of all suppliers authorized to perform "C" stamp services in the small business category, the program becomes a direct indication of the confidence that the Company places in its network of small concerns.

Plating companies currently holding the coveted stamps are X-Ray Products in Rivera; Metal Surface Company, Bell Gardens; Barry Avenue Plating, Los Angeles; Metallurgical Consultants, Los Angeles; Southwest Plating, Los Angeles; Calmecc Manufacturing, Los Angeles; Reflective Laminates, North Hollywood; Sanders Service Corporation, Los Angeles; Superchrome Engineer-

ing Corporation, Los Angeles; Los Angeles Plating Company, Los Angeles; and Anodite, Inc., South Gate.

As more firms qualify, more "C" stamps will be issued. The program is being vigorously pursued and will be broadened to other technologies as the need arises.

In explaining "C" stamp procedures, L. F. Parker, Quality Control general supervisor, Procurement and Shipping Inspection, said that the big time advantage realized comes via the vendor direct participation route.

"This enables us to short cut the flow time and get parts quickly processed when a shop overload or non-capability condition exists," he said. "The fact that the vendor accepts the responsibility for making his own inspection side steps an entire sequence of expensive administration steps with all attendant

paperwork.

"C" stamp vendors are certified by Quality Control and bid in their services on a yearly basis."

Also eliminated is the trip time required for a Norair inspector to call at the vendor to "buy" the order and okay it for return shipment to the plant. In addition, planning operations are simplified, Materiel likewise.

Special process coatings required for the trainer and the fighter include gold, silver, nickel, cadmium, chrome, dry film lubricants and anodizing.

Dollar savings that have accrued on current production runs as a result of the "C" stamp plan are being reported to the Cost and Management Improvement Program as amounting to \$10,500 to date. It is expected that as "C" stamp use expands, savings will reach continually higher figures.



DOING THEIR PART—Norair special process vendors receive praise for quality and schedule assist on the F-5 fighter and the T-38 trainer through the Division's "C" stamp program. From left are William Coffey, Norair Quality Control vendor representative; Gus Brigantino, owner of Southwest Plating; W. J. Palm, inspector, Southwest Plating and "C" stamp assignee for that company; and Earl Rossomme, Norair Small Business liaison officer. Item of pride for Northrop Norair News is that "C" stamp vendors were sent issue with front page photo of F-5 in formation flight distinctively marked for areas where their products are used.



More Blue Ribbon Safety

BLUE RIBBON SAFETY

Norair drive for safety honors for 1964 is given top assist in the electric fan department by a program of shield modification. Older fans, many of which are in service, had shields that partially failed the California code of one-half inch minimum space between guard wires all around. Machine Repair folk, 5165, salvaged good rear part of old guards by brazing with new code complying front sections. Seen in photo is shining array of safe reconditioned fans. At right is Paul Hoskins, leadman, with unsafe non-code discarded guard.



RIDE WANTED

8 a.m.—4:45 p.m.

SAN BERNARDINO FRWY. & ORANGE
West Covina. R. E. Herfert, ext. 2515.
YO 2-1821.

RIDE OFFERED

8 a.m.—4:45 p.m.

SAN BERNARDINO FRWY. & ORANGE.
West Covina. R. E. Herfert, ext. 2515.
YO 2-1821.

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

DINETTE SET, chrome, \$15. DA 4-7623 after 3 p.m.

TOOL CHESTS, Gerstner & Kennedy w/ tools, \$25; instruments & indicators, various prices. OS 5-8818.

CHEVROLET Impala super sport, 1963, auto, trans., p/s, p/b, console control r/h, low mileage. \$2395. 321-5559.

STEREO, GE model T-1000, walnut, AM-FM, multiplex, AFC, ext. spkrs. & input \$60. FR 2-4535.

FORD, 1957 auto, trans., r/h, \$300. OS 5-4333.

FORD station wagon, 1958, T-Bird ena. \$750 or offer. 378-2537.

TENOR SAX, Buescher, \$150. FR 4-6003

OLDSMOBILE 1931 sedan, current rea. \$750. OS 6-6390.

CHEVROLET Impala, 1959 convert., V-8 Poweralide, p/s, r/h, \$1095. FR 6-6755.

MOBILE HOME, 1958 Kit Stateliner, 10'x47', 10'x40' alum. awning, cooler, \$3000. 632-8215.

BOAT, 18' runabout, 5 1/2' beam, \$300. OR 7-6348.

DINETTE SET, Virtue Bros., \$50. DA 4-8853.

DISHWASHER, GE, \$45. FR 4-2575.

PLAY PEN, \$9.50. 371-9730.

HOUSE, 3-bdrm., 2-bath, new paint, built-ins, fenced yd., \$20,500. 834-9137.

HOUSE, Westchester, custom 4-bdrm. & den, 2 baths, new kitchen carpet & drapes, beam ceilings, walking distance to schools, near shopping center, \$45,500. OR 0-1864.

MOVIE CAMERA, Revere 8-mm. leather carrying case, \$30. OS 6-1475 after 5 p.m.

SOLITAIRE w/matching wedding ring, 1/2 karat, blue-white diamond, \$175. FR 4-8780 evenings.

AIRCRAFT CLOCK, 8-day Wakmann, \$20. Box. 901.

LIMIT—ONE ITEM

AIR CONDITIONER, 1961 Philco window-type, 1-ton, 220-volt w/ext. cord, \$150. 943-1737.

SEWING MACHINE, Kenmore, in cabinet, \$35. OS 6-9462.

VOLKSWAGEN sedan, 1961, new paint, upholstery, good tires, 1964 access., \$1200. FR 5-4762.

CORVAIR, 1960 4-dr., automatic, \$650. OS 6-9398.

RUG, 9x12, beige embossed, \$30. 325-3865.

RANGE, aas. Prosparty, 4-burners, white, \$20. OS 6-0041.

TRIUMPH, 1962 TR-3 rdstr., less than 13,000 miles, r/h, \$1600. TE 4-9205 after 5:30 p.m.

CHEVROLET coupe, 1953, new trans., smog control device & 5 near new tires, \$750. HA 5-6844 after 5:30 p.m.

AMBASSADOR, 1962 4-dr., full power, factory air, \$1795 or best offer, DA 9-4576 after 5 p.m.

SLOOP, 26' Thunderbird, 1963, fully equipped, \$5500 or best offer, EX 1-1673.

BICYCLE, boy's 24", \$20. 377-4489.

TV, 21" Emerson, 1-yr-old, \$75. 676-6394 after 4:30 p.m.

FOR SALE

T-BIRD, 1956, p/s, p/b, new tires, seat belts, \$1650. DA 4-1811.

TABLE, child's, Cosco, \$11. OS 6-8279.

PROJECTION SCREEN, 32"x40", \$5. FR 5-8536.

SURFBOARD, Jacobs, 8' 11", newly re-finished, \$35. OR 0-2268.

WASHING MACHINE, wringer-type w/pump, \$25. OS 6-1018.

ACREAGE, approx. 16 acres in Apple Valley, all for \$12,000 or in approx. 4-acre plots for \$3000 ea. 864-7425.

BOAT, cat-type by Silverlining, 14', 2 Johnsons, 35-hp, elec., \$975. OS 6-6650.

PLYMOUTH station wagon, 1952, 1955 265 cu. in. Chevrolet rebuilt eng., 1960 Corvette Poweralide, elect. fuel pump new wirina, r/h, \$325. ST 8-9709.

MOVIE OUTFIT, 8mm Keystone camera projector & screen, \$75. OS 6-7357.

CAMPING TRAILER, 15' 1958 deluxe DeVille, butane & elec. refria., sleeps 5, \$850. 377-3548.

CORVAIR Monza, 1960, stick shift, \$895. 379-2504.

MOBILE HOME, 1960 Palace, front kitchen, 3-bdrm., auto. washer, built-in booth, furn., many other extras, \$3900. 324-1016.

RADIO for Volkswagen, deluxe, push-button, transistor \$45. OR 2-8014.

BOAT, 18' cabin cruiser, Fiberglass & wood, 30-hp, Evinrude elec., trailer, \$700. PL 4-5288.

CHEVROLET, 1954 2-dr. sedan, repairs needed, \$100. DA 9-5364.

BOWLING BAG, man's, \$5. 676-4020 after 5 p.m.

GO-KART, \$50. OR 4-5601.

CHEVROLET, Bel Air, 1957 4-dr., r/h, w/s/w, auto, trans., p/s, p/b, \$750. 834-7589 after 5 p.m.

BED, rollaway, \$5. ME 3-2395.

AIR COMPRESSOR, high-speed, 2.5 cfm w/tank & spray gun, \$50. FR 8-3990.

CORVAIR Monza, 1961, auto., r/h, w/s/w, 27,000 miles, \$1100. 672-2091.

CORVAIR 700, 1961 2-dr. sedan, low mileage, r/h, w/s/w, stick shift, \$900. 677-8383.

HOUSE, 3-bdrm., lae. patio, fenced yd., o/sized 2-car garage, Torrance area, \$17,750. FA 8-4188.

DRAFTING MACHINE, Bruning, 18" & 12" alum. scales, \$65. 324-2304.

RAMBLER station wagon, 1959, stick shift, \$500. 934-7938 evenings.

CARPETING, brown & beige, wool tweed, approx. 70 sq. yds., \$70. FR 5-8778.

WASHER-DRYER comb., RCA elec., \$150. FR 7-4770.

OLDSMOBILE 88, 1957 h/top, 2-dr., r/h, w/s/w, all power, \$595. OS 6-8517 after 4:30 p.m.

BICYCLE, boy's 24" Schwinn, \$20. FR 4-8608.

SWIMMING POOL, 15' dia. x 42" deep w/hvy-duty pump, filter & access., \$140. DA 3-6717.

LAMPS, 2 modern, \$10 ea. 679-2983.

BOAT HULL, 18', V-bottom, marine plywood, 6' 7" beam, \$110. 831-0093.

LUGGAGE, blue Samsonite, 2-pcs., 16" & 22", \$20 for both. 370-4444.

HOUSE, 3-bdrm., small beach-size lot, arrange for second, w/w carpet, disp., built-ins., landscaped & fenced, \$19,950. 376-9704.

HONDA Super Hawk, 1963, new cond., 2600 mi., \$495. 373-1143.

TIRES, 5, near new, 8.50x14, 4-ply Goodyear first line, b/w, \$24.50 ea. 377-1094.

WANTED TO BUY

FACTORY FUEL injection system for 1962 or later 327" Chevrolet eng. 370-3458.

MANUAL for 1957 TR-3. DA 7-0304.

FOR TRADE

CHEVROLET, 1956 Bel Air, auto, trans., 4-dr., trade for Volkswagen or other comparable economy car. PL 5-0160.

RENTALS OFFERED

APTS, unfurn., laundry room, garage, private patio, close to bus lines, newly decorated, adults, 1-bdrm., \$78.50; 2-bdrm., \$98.50. DA 9-9195 after 5 p.m. E

HOUSE, Rollina Hills Estates, 2-bdrm. & den, fireplace, 2 baths, \$225 mo. FR 5-5470.

APT, 2-bdrm., w/w cpt., built-ins, tub encl., garage, 2 children ok, \$100 mo. FR 2-0149.

HOUSE, 2-bdrm., fenced yard, 2 miles from Norair, \$115. OS 5-0279.

STUDIO APTS, 2 & 3-bdrm., furn. & unfurn., 1 1/2 baths, w/w cpt., built-ins, heated pool, recreation & billiard room, putting green, laundry rooms, \$139.50. OR 2-6244, 679-1101 until 5 p.m. week-days.



READY FOR THE QUESTION—The question being how far down is the Phantom Ranch? Shown at the South Rim, the beginning of their Grand Canyon trek, NRC Hikers and Packers from left are Bob Van Allen, Ken Alexander, Evert Ellis, Lee Robinson, Jack Young, Pete Bakuses, John Vansickle, Paul Goff (kneeling), and Charles Fuller. The boys made a 3-day, 44-mile trip of it; farthest point reached was four miles from North Rim. Everybody got their canteen?

NRC Hikers and Packers Make 44-Mile Jaunt into Grand Canyon

The NRC Hikers and Packers started the 1964 summer season with a headline-type jaunt into the depths of the Grand Canyon of the Colorado.

In order to avoid the push and strain of holiday driving, the group of nine men made the trip to and from the South Rim by way of Santa Fe's El Capitan.

The trip reversed the routine of most of the trips made by the

Hiking and Packing group. Normally, the hard climb comes first and the downhill stroll is on the homeward leg. In the case of the Grand Canyon, the first few miles and hours are all downhill — until you reach the Colorado River. From that point on any direction you head, the elevation is up.

Originally, the trip had been planned as a one-way traverse

from the North Rim to the South Rim. Due to severe snow conditions on the North Rim, the airport there was closed. In order to see such famed places as Ribbon Falls and Roaring Springs, which are near the North Rim, the group extended the three-day trip from a 24 1/2-mile traverse to a 44-mile "double cross."

The hikers and packers consisted of Bob Van Allen, Budget Administration, hike leader; Evert Ellis, Business Systems, assistant leader; Ken Alexander, Boeing representative; Pete Bakuses, Receiving Inspection; Charles Fuller, Northrop Space Labs; Paul Goff, Logistics Data; Lee Robinson, Contract Administration; John Vansickle, Engineering-Electrical; and Jack Young, son of Norair Quality Control director.

All participants on the trip expressed the opinion that the only real way to gain true appreciation for the magnificence of the Canyon is to see it from the inside out. However, not until one returns to the rim and gazes again into the depths is the full impact of the experience felt.

The Hiking and Packing group has plans established for varied trips during the balance of the season. Many will be one or two-day local jaunts open to men, women, and children. Others varying in length and degree of difficulty have been planned for the High Sierra.

Commissioner Gordon Madison has indicated a summer of mountain trips with something for everyone.

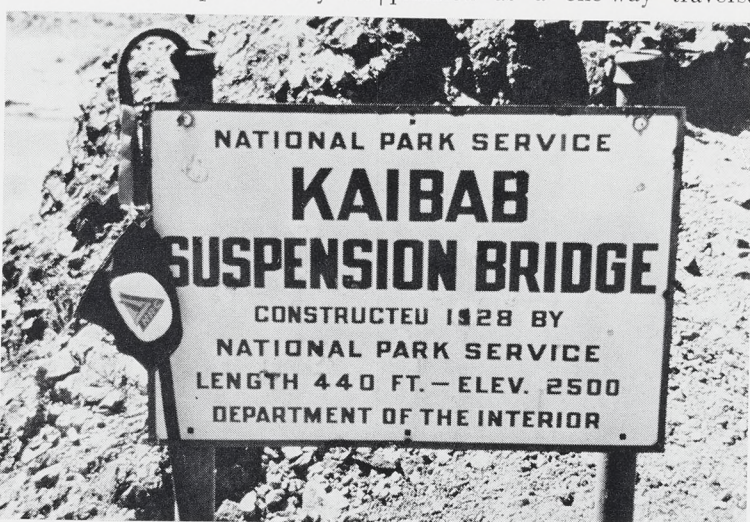
MODEL AIRPLANE REACTIVATED

The NRC Model Airplane Club has been reactivated, it is announced by Bernie Doyle, NRC president.

The activities will include all model categories such as gliders, indoor microfilm, all classes, powered or not, free flight, rubber powered, "U" control and radio control.

Jim Doyer is heading up planning efforts. He can be contacted through the NRC office, Personnel Activities, extension 2784.

The first meeting has been scheduled for June 18, tomorrow night, 7:30 p.m. at the NRC clubhouse.



AT THE RIVER—Note NRC brassard at left. Note also the always-with-us painstakingly patched work of genus homo pestus, the sharpshooting mutilator of signs.

Dodger Tickets On Sale At Personnel Activities

Personnel Activities has tickets for the Dodgers for the nights of July 24 and August 21, both Fridays.

The office has reserved a block of 250 seats, third base side, to watch our world champs play the San Francisco Giants, and the Cincinnati Reds, on the respective dates.

The seats are now on sale at

P.A. Price is \$3.50.

As with the Angel group trip, bus transportation to and from the stadium has been arranged. Fare is \$1.

Boarding area is the parking lot east of Crenshaw, opposite gate 16. Time to be there is 6:30 p.m. Game goes can park their cars in the Company lot.

RENTALS OFFERED

APT, new lae. 3-bdrm, 1 1/2-bath, built-ins, cpts., drapes, pvt. patio & garage, near Northrop, children ok, \$160. OS 5-7938.

APT, 2-bdrm., w/w cpt., disposal, lae. closets, 1 mile to fwy. in Palms area, \$125 mo. VE 8-5508.

APTS, 2-bdrm., built-ins, cpts., drapes, adults, dishwasher, garage, patio, sun-deck, 11 blocks from King Harbor, \$135 & up. FR 4-4805.

APT, unfurn., 2-bdrm. extra lae. kitchen w/dining area, pool, patio, all extras, closed aarage, \$125. DA 9-5986, DA 3-1946 after 4:30 p.m.

APT, 1-bdrm., cpts., drapes, built-ins, pvt. patio, aarage, near downtown Torrance, \$95 mo. FR 5-0867.

RENTALS OFFERED

ROOM for working lady, no smoking or drinking, \$10 wk. 676-8393.

APT, 2-bdrm., unfurn., children ok, near Northrop, disposal, \$95 mo. DA 9-0314.

CABIN, Crestline, near Lake Greary, sleeps 6, June to Sept., \$60 wk. EX 1-2040.

RENTALS WANTED

HOUSE, 4-bdrm., 2-bath, unfurn., for Aug. 1. 867-1428.

CHILD CARE WANTED

SUMMER CARE for school age girl, hot breakfast, lunch & opportunity for summer fun. 379-1049.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, July 1, 1964

HAWTHORNE

EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

Careers Launched



NORTHROP TOUR ENDS—Norair General Manager Dick Horner, right, and Harry Blocher, supervisor, Training and Training Equipment, left, congratulate Air Force Education With Industry men Majors Ken Garrett and Stan Wise, upon completion of their nine-month Northrop assignments. Mr. Horner presented each with framed Certificate of Completion to mark the event. Major Wise will now go to his new station with Atlanta, Georgia Procurement District. Major Garrett, recently promoted, will go to the Minneapolis Procurement office.

T-38 Proves Ruggedness in Fatigue Certification Tests

The T-38 fatigue certification program has achieved another milestone, it has been announced by W. E. Woolwine, manager, T-38/F-5 Program department.

The contracted 30,000 hours of simulated flight has now been completed on the basic wing structure, Mr. Woolwine told the News at presstime. This is air time equivalent to at least twice the expected operational life of the trainer.

Also, more than 64,000 simu-

lated landings have been made to date in a program that will continue for a total of 75,000 landings, also double the T-38's service expectancy as planned by the Air Force.

Fatigue tests, to extensively prove the trainer's built-in ruggedness and ability to "take it" in ATC's pilot training program, are being conducted at Hawthorne in Norair Technical's Engineering Laboratories, Royal Jackman, chief.

Touring F-5 Takes Part In Brussels Air Show

The U.S. Air Force demonstrated the capabilities of the Northrop F-5 supersonic tactical fighter at the Brussels Air Show June 27 and 28 as part of a two-month training demonstration tour of allied nations in Europe and the Middle East.

Major Norvin C. Evans, jr., an F-5 project pilot from the Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio, was the demonstration pilot during the Brussels Air Show.

The F-5 will visit air bases in several allied nations scheduled to receive quantities of the versatile new fighter under the U.S. Military Assistance Program. The visits are designed to familiarize key government and military officials with the performance of the F-5 fighter.

The aircraft also called at Rygge Air Base, near Oslo, Norway, for a three-day operational stop over and capability demonstration. The Royal Norwegian Air Force will acquire a quantity of F-5A and F-5B first-line fighters during the 1965-1967 time period.

The F-5 supersonic tactical fighters were first ordered into quantity production by the Department of Defense in October 1962, primarily to provide a versatile aircraft for U.S. allies.

First deliveries of the F-5s to some nations participating in the Military Assistance Program are to begin at the end of 1964.

Itinerary of the F-5B tour will include Norway, Belgium, Netherlands, Greece, Turkey, Iran, and Saudi Arabia.

Cafeteria Makes Special Plans for "V-I-P" Program

WEEKLY SHOWS TO HELP SPICE BILL-OF-FARE

Norair's cafeteria, Plant One, long recognized as one of the best examples of industrial food establishments, is now due for a series of even more progressive steps in providing Northrop personnel with a pleasant, satisfying, place to eat.

The name for the program will be Cafeteria V-I-P Days with the initials signifying "Very Important Patrons."

Freddie Wolfe, Cafeteria Services, and his staff have been quietly conducting V-I-P "pilot" runs to get personnel reaction as to just what attractions mix well with breakfasts, lunches, and dinners.

As with all test programs Fred who has headed Northrop cafeteria for 18 years, has scored some hits and some misses, but he now feels it is time to go ahead and publicize the plan, giving details of what is firm and when to expect it, and also give a glimpse of what tentatively is to be served up for the future.

There will be, among other things, low key but POSH entertainment, do-it-yourself demonstrations, prize drawings, and of basic importance to the pocket-book, special and reduced prices each and every week.

POSH, incidentally, is a baggage handling term originating on British India voyages. Stamp-

ed on one's steamer trunk it meant port outbound, starboard home. In other words, a state-room on the shaded side all the way. A privilege afforded only to very important people. And this

JULY 4 BRINGS LONG WEEKEND

The Norair plants will be closed Friday, July 3, as part of the long July 4 weekend, it has been announced by T. L. McCarthy, manager, Administration department.

Paychecks for the week will be available on the following schedule:

Third shift — after 3 p.m., July 1.

First shift — after 8 a.m., July 2.

Second shift — after 3 p.m., July 2.

is where Fred came by V-I-P (Very Important Patron) Days for the cafeteria new look.

"All our patrons are very important," says Fred. "And it's our job to take proper care of them. Cafeteria V-I-P Days is part of our advertising program by which we intend to bring the word to every member of the Northrop team. We want everyone to visit the cafeteria and this means that we must have a

variety of interest and things to offer. This could be a fashion show, unlimited coffee refills free, or a manufacturer's demonstration of SCUBA diving equipment.

"The entertainment we had last month—pianola and organ music by Martin Edwards' Music salon of Pacific Coast Highway — was very popular. It was a hit. And we will have a repeat. And how about a hootenanny? Ballads. A string quartette. Flower arrangement. A ceramic display. And how would you like to see a Norair product movie? There is a fine new film just out on the F-5."

Freddie stated that he intends to make each week different.

As a sample and indication of what is coming, he outlined the following cafeteria V-I-P program for July.

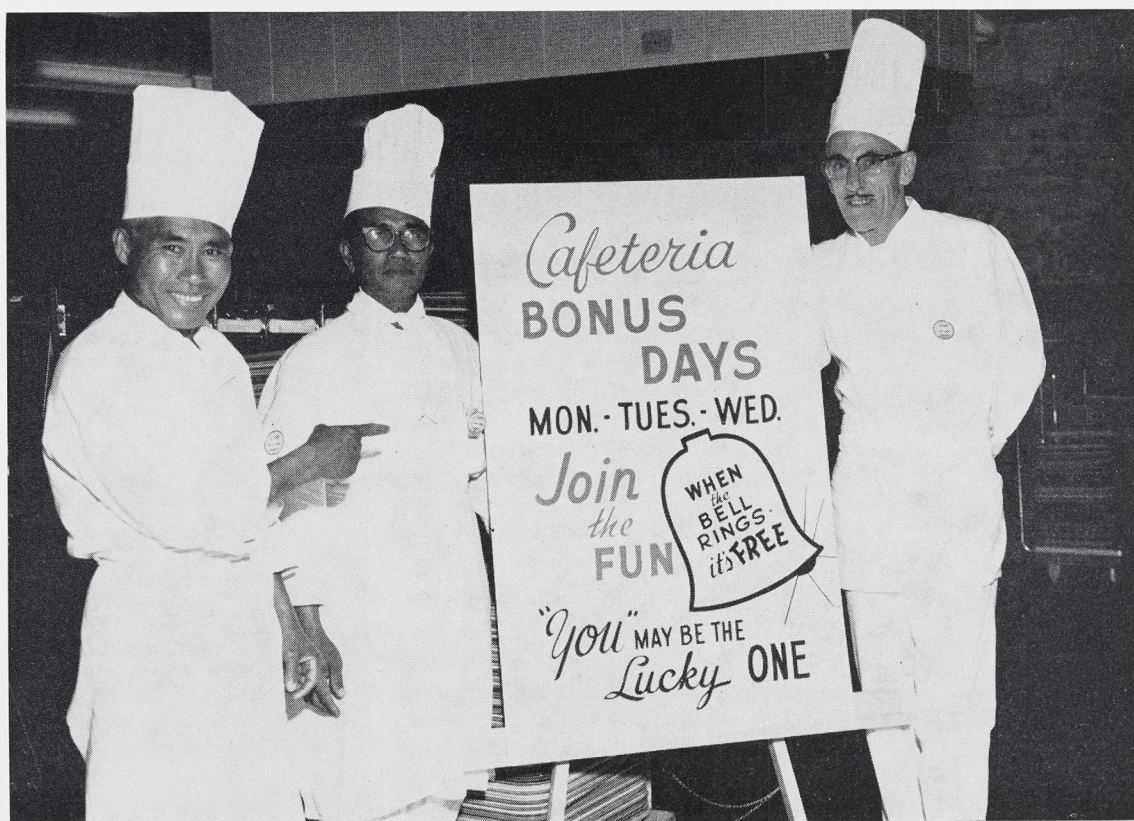
For the week of July 6 through 10:

Entertainment — pianola and organ.

Gourmet breakfast for 85 cents plus tax. A gourmet breakfast is a big breakfast. It includes ham and eggs, toast, jelly, hash brown potatoes, coffee.

Steak lunch or dinner for \$1. Bring the wife and kids for dinner. Advise one of the cashiers which night you intend to bring

(Continued on Page 4)



JOIN THE FUN—So says the cafeteria poster in announcing bonus days for diners coming up. John Cabias, first cook; Larry Ventura, leadman cook; and John Korn, first cook, indicate what's good on the pantry shelf. It's all a part of Cafeteria V-I-P Days (very important patrons) a combination of special prices, variety features, and demonstrations like Northrop folk have never seen in the plant before. "All of our patrons are V-I-Ps," states Freddie Wolfe, cafeteria head, "and we are following the trend of the times with added service, added interest, added variety."

AT HOME...

Home Safety is 24-Hour Affair, The Entire Family Takes Part

Identify all poisons by taping lids with adhesive tape or sticking pins in cork so they may be identified by touch.

Don't give prescription medicines to anyone other than the person for whom they were intended.

Never take or give medicine in the dark.

Always read label before taking or giving medicine, being careful to check dosage, and again after taking it or giving it.

When containers for insect spray, rat poison, etc., are empty, dispose of them where children or pets won't get them—do not burn these containers.

Turn all pot handles in during cooking.

Don't wear flimsy clothing or long full sleeves when cooking.

Lift far side of pan lids first to prevent scalding.

Use a potholder when handling hot pans.

Keep children out of the kitchen during meal preparation. If small children must be watched in the kitchen, keep them in a sturdy high chair or a playpen—out of reach of the stove and sharp tools.

Keep matches out of reach of small children, and teach older children to use them properly.

Dry foods carefully before frying to prevent splattering.

Clean stove regularly to avoid accumulations of grease.

If grease in pan catches fire, smother with pan lid or a handful of salt or baking soda (never flour).

Be sure that cords for irons, electric coffee makers, automatic fry pans, etc., are not placed where tots can reach them or where they might be accidentally caught or tripped over.

Low hanging tablecloths are an

invitation to toddlers to pull hot foods down on themselves.

Use water only as hot as your hand can tolerate in hot water bottles—not scalding. Cover the bottle with thick toweling before using.

Don't go to sleep with an electric sleeping pad on.

Don't use electric blankets for small children, old folks, or anyone insensitive to heat.

Provide screens and guards for windows and check to see they are in good repair and securely fastened so youngsters don't topple out.

Don't let children play on balconies, high porch railings, or banisters.

Install grab bar to aid in getting in and out of bathtub.

Be sure that tub has a nonslip surface (coatings are available or a rubber mat may be used).

Be sure that bath mats and rugs have a nonslip back.

Don't leave baby alone, even for a minute, on bed or bathinette.

Be sure that baby can't tip or fall out of high chair or buggy.

Be sure to instruct babysitter about these precautions.

Always use a stepstool or step ladder for climbing—never substitutes.

Be sure that step ladder is fully spread and locked, and that all four legs are level.

Don't stand on top of step ladders.

Wipe up spilled water, grease from floors immediately before someone slips.

Clean oil, grease, scraps from workshop floors regularly.

Don't carry loads you can't see over up and down stairs.

Provide adequate lighting for

stairs, hallways, entrances, exits, outdoor walks.

Lights for stairways should have switches top and bottom. Other lights, indoors and out, should be placed so that you can light your way ahead of you.

Be sure that bedroom lights can be turned on without getting out of bed, especially for older folk.

Provide separate storage section for sharp knives, and wash and dry them alone.

Keep knives, scissors, used razor blades, etc., out of reach of small children.

Discard cracked or chipped glassware and dishes. Wrap in several thicknesses of newspaper and mark accordingly.

Don't pick up pieces of broken glass in your fingers. Use dust pan and broom for large pieces. Tiny slivers may be picked up with wet paper napkin or tissue.

In the workshop, provide separate storage, and protection, for tools with cutting edges.

Know and observe all safety rules for use and operation of hand tools and power equipment.

Don't let children use workshop. Lock out power supply and lock up cutting tools.

Keep kitchen cabinet doors, windows that open out near walkways, etc. closed to prevent cut heads.

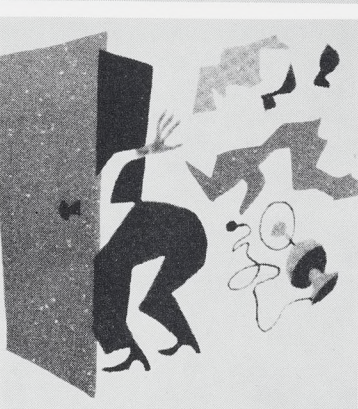
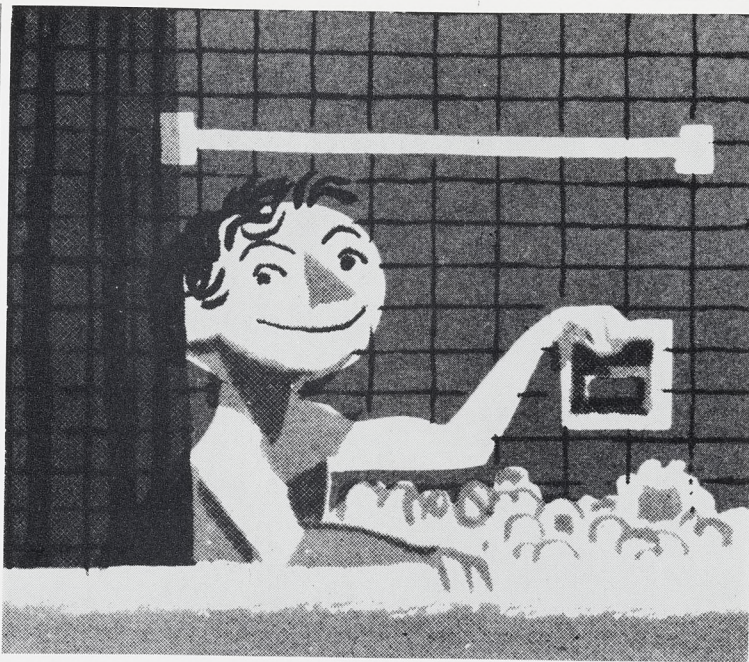
Don't use substitutes for can openers.

Substitutes for hand tools, too, are dangerous.

If you keep guns in the house, lock them up out of reach of children.

Always check guns before each handling to be sure they are unloaded.

Instruct children, especially boys, in proper handling of firearms as soon as their interest permits.



Safe On Your Own Time

NORAIR MANAGEMENT

For every accident at work 10 happen statistics.

Norair management, in its sincere effort to prevent injury wherever it happens, both on the job and at home, has included the major portion of this issue of the News in the "Safety On Your Own Time" section.

The News acknowledges with gratitude the help of the American Red Cross, American Medical Association, Southern California Auto Club, the Boy Scouts of America, and the Girl Scouts of America for their help in compiling the material.

Dowse Home Worries by Careful Check System

Concern over whether things at the old homestead are alright can take a great deal of the pleasure out of an otherwise happy vacation.

In an attempt to eliminate this concern the Automobile Club of Southern California has prepared the following list of things a vacationer should do before leaving on his trip.

Notify the circulation department of your newspaper to have the paper sent to your vacation address, or tell them to stop delivery while you're away. Also, tell the milkman and others who make scheduled deliveries to your home that you'll be away.

Turn off your refrigerator and other utilities.

Provide for the care of your garden.

Provide for your pets.

Arrange for some one to pick

up your mail; if necessary, have it forwarded.

Be sure all exterior doors and windows are locked.

Notify neighbors and local police that you are taking a trip and that you have asked no one to move anything from your home or apartment.

Leave window shades only part way down.

Don't leave a note for prospective guests in the mail box announcing that you're gone and to make themselves at home.

Plan your trip in advance, including your itinerary, places to visit, accommodations, points of interest, route information and maps.

Make sure you have a car registration certificate and a valid driver license, with the correct address on them.



and while vacationing

Summer is a time for a change of pace—vacationing at mountains and seashores instead of the city.

It is a time toward which we plan—so often we spoil because we try to do too much.

DON'T . . .

Try to crowd too much into any one day.

Show off—on the road, the surfboard, the water skis, in the pool, or on the golf course.

Stay in the sun too long—sunburns are serious, and eyes can be damaged by too much glare.

Load up on "junk" foods, or picnic food left too long away from refrigeration.

Take chances with minor injuries and skin abrasions.



... ON THE ROAD

Be Defensive Behind the Wheel, Life you Save May be Your Own

Tailgating is dangerous business. Stay a safe distance behind the car in front of you. Multiply your speedometer reading by two and keep that many feet behind the car you are following.

Remember a safe following distance gives you better visibility and a better chance of stopping in time.

When you find someone driving very closely to your back bumper, allow an extra margin of safety in front. Keeping a safe "cushion" of space in front of your car lessens your chance of being hit from behind.

When moving back into line after passing a vehicle, do not cut in too soon. Remember the other driver needs a safe following distance too. Check his position and be able to see his car in your rearview mirror before returning to your lane.

Drive defensively, especially on

freeways. Notice traffic conditions shaping up ahead and behind you and be ready to act accordingly. Maintaining a safe following distance is one of the best ways to drive defensively.

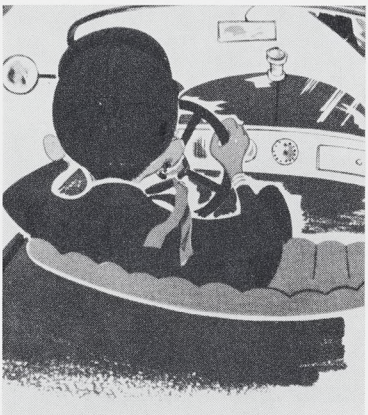
Thirty percent of all freeway accidents are rear-end collisions and 20 percent of all traffic injuries are caused by following too closely.

Vacation driving tips — Start your trip early in the morning so that you can stop early. It's a safe rule not to drive more than seven hours a day. Longer driving stints are dangerous . . . During the trip, stop approximately every two hours for rest and refreshments. This helps you maintain your driving efficiency . . . If more than one passenger in your car can drive, take regular turns at the wheel . . . Always let moderation be your guide. Remember, it's better to cover a few miles less on your trip and return home safe and rested.

On your long trips don't forget such useful items as thermos bottle, camera and film, sunglasses, first aid kit, travelers checks, checkbook, flashlight and motor club and insurance credentials.

Freeway driving is conducive to "highway hypnosis." On a long trip get plenty of fresh air, travel at slightly varied speeds, avoid staring straight ahead by looking about occasionally and take frequent stops and rests to keep awake and alert. Cut a lemon in half and touch your tongue to it whenever sleepy. You will come awake in a flash. An old bus driver's trick.

For a safer and more pleasant vacation trip this summer have your car in good mechanical condition. Among other things, make sure that all of your lights are working properly; directional signals, headlights (low and high beams), taillights, both stoplights and license plate light.



MOUNTAIN DRIVING . . .

Always keep to the right half of the roadway, especially on curves.

Don't ride your brakes on long or steep downgrades. Use the compression of your motor—either second or low gear.

Keep your radiator filled with water. Water boils at a much lower temperature in the higher altitudes and may have to be replenished more frequently than at lower elevations.

If your engine heats up and stops even though you have a full gas tank, you may have a vapor lock. Place a damp cloth over the fuel pump for a few minutes.

Carburetors adjusted for low-altitude driving in some cases may have to be adjusted for mountain motoring.

Don't hurry; drive slowly and see more. Stop at the overlooks along the highway to enjoy the scenic views.

Your trip will be more enjoyable and comfortable if you observe the safe driving speeds which are often posted at curves.

DESERT DRIVING . . .

Be sure your car is in good condition before starting out.

Tell a responsible person your exact route and expected time of return (or arrival at next stop). Have a sufficient supply of water (perhaps 5 gallons) stowed in your car.

Check your tires in the morning to normal driving pressure. During the day, pressure will build up in them from the heat; this is artificial heat pressure. If you think the tires are riding hard, stop somewhere along the road for a few minutes. There is always a breeze moving on the desert and it will cool off the tires quickly.

Check the water and oil when buying gas. Unless you have a leaky radiator, you won't need to add water—as long as you drive at sensible speeds. Watch your water temperature gauge, especially on long upgrades.

If you have a breakdown on the highway, stay with your car. Raise the hood to signify that you are having car trouble.

If you have to walk, walk at night—and stay on the roads.

Safety Your Own Time

MENT ON HOME SAFETY

10 happen at home. So say national safety

s sincere effort to cut down on personal both on the job and off the job, provides ue of the Northrop Norair News to com- ur Own Time" message to all personnel. ith gratitude the good offices of the Ameri- ical Association, the Air Force, the South- Boy Scouts, and the National Safety Coun- the material presented here.

e vacationing

ge of pace — for getting outdoors and look- instead of four walls and a scenic calendar. plan — sometimes for a whole year — but o do too much, too fast, or too energetically.

DO . . .

Take it easy. Start early and stop early.

Be a "pro" in all you do. A professional drives, swims, golfs, or whatever, to still be fit for another day.

Protect your skin with creams or clothing and your eyes with good sunglasses.

Eat lightly, but with as much variety as possible.

Keep a **first aid kit** in your car and in your boat.



A sun tan is fine, but avoid getting half baked —it looks bad and feels worse. When it's hot, take it easy—eat less—drink plenty of liquids.

Swimming is Most Fun, But Play it Cool Man

For millions of Americans who take to the water this summer—a probable all-time high—the American Red Cross has issued its annual summer advice on how to stay afloat and stay alive.

1. Learn to swim. If you can swim a little, learn how to swim better. (Check with your local recreation departments for upcoming classes.)

2. Always swim with a companion. Make sure someone is nearby to help if you get into trouble.

3. Swim in a safe place. The presence of lifeguards usually indicates the area is safe for swimming.

4. Know the area. Before diving, make sure the water is deep enough and that there are no hidden objects such as submerged rocks.

5. Respect the water and know your limitations. Don't go be-

yond safe limits or your swimming capacity.

6. Use discretion. Wait at least an hour after eating before swimming, and don't swim when overheated or overtired.

7. Try to remain calm in case of trouble. Assume a faceup floating position, keep your hands under water and slowly move your hands and feet.

8. If your boat overturns, stay with it. Most small craft will float, even when filled with water.

With the rapid multiplication of homeowned swimming pools, farm ponds and motor-powered boats, the Red Cross estimates today that over 100 million Americans will use the water this summer for recreational purposes.

But there are still 6500 drownings a year—the majority resulting from recreational use of the water.



RIDES WANTED

7 a.m. — 3:45 p.m.

ORANGE & 37TH ST., Long Beach. G. J. Grummer, ext. 2574. GA 4-6383. 2

7:30 a.m. — 4:15 p.m.

MANHATTAN BEACH BLVD. & PECK, Manhattan Beach. Marion Potter, ext. 1831, FR 9-4609. 3

RIDES OFFERED

8 a.m.—4:45 p.m.

LA BREA & 62ND, Los Angeles. Anne Lawrence, 1752. AX 4-4325. 15

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

FORD, 1959 V-8 2-dr. Country sedan, Cruise-O-Matic, \$800. 373-1333. A

TRAILER, 2-wheel utility-type, 4'x8', \$50. 834-9137. A

ELECTRONIC FLASH, Ultrablitz Monojet MK II, 40-watt sec., rechargeable Nicad battery, w/A.C. power cord & built-in charger, \$40. Box 1001. A

CHEVROLET, 1956, auto, trans., \$714. PL 5-0160. A

CHEVROLET Impala coupe, 1958, 348 3-spd., \$1050. OS 6-6650. A

TRUMPET, Olds Ambassador, \$65. FR 4-6003. A

BICYCLE, girl's beginner, 2-wheel, \$15. 676-4020 after 5 p.m. A

CHORD ORGAN, 49-key, 30 chords, Silverstone console, \$120 or offer. 324-2304. A

PATIO DOORS, track & screen, set, hvy. plate glass, \$20. DA 4-7623 after 3 p.m. A

FORD pick-up, 1956 1/2-ton, 6-cyl., 4-spd., \$450. TE 5-3049 after 6 p.m. A

FORD Country Squire station wagon, 1956 9-pass., p/s, r/h, \$375 or best offer. 374-3283. A

T-BIRD, 1957, 46,000 actual miles, \$2195 or best offer. 324-8054. A

AQUA-LUNG, U.S. Diver's, 3 air tanks, weight belts, \$80. 349-4515 after 4:30 p.m. A

FISHING BOAT, 25', lge. bait tank, \$2400 or offer. OS 5-7729 after 4 p.m. A

HOUSE, 3-bdrm., conv. den., 2 baths, elec. kitchen, built-ins, pool, cpt. & drapes, West Fullerton, \$22,950. LA 5-8415 after 4 p.m. A

REFRIGERATOR, Crosley Salvador, 5', w/ freezer comp., \$65. FR 9-9570. A

SHOTGUN, L. C. Smith, 12 ga., \$80 or best offer. 325-3376. A

TV, 23" Stereophone, AM-FM-AFC radio, console, 1963 model, \$200. EX 6-4424. A

REFRIGERATOR, Coldspot, \$40. 674-1847 after 5:30 p.m. A

PONTIAC, Catalina, 1963 2-dr. h/top, w/s/w, r/h, Hydromatic, factory air, p/b, p/s, \$3000. 679-1324. A

WASHER, Whirlpool, auto., suds saver, \$40. TE 3-7621. A

TV, 12" Admiral, portable, \$40. 673-1097. A

HOUSE, Palmdale area, Desert View Highlands, 3-bdrm., 2-bath, fenced yd., GI loan, \$13,000. 325-3057. A

RANGE, O'Keefe & Merritt, apt-size, gas, \$40. 831-9589. A

HOUSE, remodeled, 3-bdrm., 1 1/2-bath, R-2 lot built-ins, water softener, w/w cpts., cinder block fence, \$21,500. OS 5-0782. A

SLOOP, 18' auxiliary, sleeps 2, 5-hp gas, ena., sails & cover, Coast Guard safety equip., teak finish, \$2700. 397-6439 after 6 p.m. A

PLATFORM ROCKER, red Nauquahyde, \$25. 377-6648. A

BICYCLE, Derailler, boy's, 10-gear, special seat, new paint, \$40 or make offer. 675-1211. A

TABLE PADS, oval w/2 leaves, Brown felt backing \$15. SP 2-1902. A

SABOT, El Toro, Dacron sail, \$130. FR 5-5760. A

FOR SALE

TEMPEST Le Mans sport coupe, 1963, V-8 327 cu. in. ena., r/h, auto., p/b, w/s/w, \$2150 or best offer. DA 7-8994, DA 9-9464. A

LOT, San Pedro & Harbor area, \$18,000. FA 8-4188. A

LAND, 19-acre parcels near Rosamond, \$445 acre, terms. FR 8-1026. A

SPORT FISHER, 33' 4" T/S, S/S, elec. winch, \$5000. 673-9207. A

PING-PONG TABLE, 5-ply plywood paddles & net, \$25. OS 6-8789. A

TV, 19" Admiral, table model, \$25. 398-7417. A

BICYCLE, boy's Derailler, 10-spd., 26", \$45. PL 6-0015. A

RANGE, gas, 36" Gaffers & Sattler deluxe model, 3-yrs-old, white, \$75. FR 5-0217. A

WASHER-DRYER COMB., RCA, 4-yrs-old, service contract, \$120. FA 1-4474. A

CAMPER, 8 1/2', cabover-type, sleeps 4 adults, many access., mounted on 3/4-ton Ford, r/h, o/load springs, o/size tires, \$2300. FR 2-2902. A

LOT in Bouquet Canyon, nothing down, as low as \$20 mo., ideal for hunting & fishing. \$1000. SP 6-1286. A

MERCURY, 1956 conv., new top, ena. o/haul, smoa control device, \$250. OS 1-1214. A

CHAIN SAW, extra chain, \$100. OS 5-2159. A

OUTBOARD MOTOR Johnson 18-hp, 1958, less than 150 hrs., \$125. PL 6-6685. A

FORD Galaxie, 1959, new V-8 ena. & tires, p/s, auto. trans., \$885. 323-6004 after 4:30 p.m. A

TIRES, 5, 8-50x14, 4-ply Goodyear first line, b/w, \$24.50 ea. 377-1094. A

LIMIT—ONE ITEM

PLAYPEN, \$5. 371-9730. A

BABY BED & MATTRESS, small, \$8. 675-6020. A

HOUSE, 3-bdrm., 1 1/2-bath, on 1/3 acre w/24'x40' pool, landscaped, San Pedro side of Palos Verdes Peninsula, \$43,500, TE 3-9455. A

RANGE, Tappan, gas, 36", timer & grid-iron, \$60. PL 5-7231. A

BREAKFAST SET, 4 chairs, chrome, yellow, \$15. ME 3-2395. A

AIR COMPRESSOR, portable w/spray gun, \$50. FR 8-3990. A

DRYER, Westinghouse elec., \$45. OS 6-3589. A

COUCH, Danish, \$160. 375-3695. A

UNIFORM, Boy Scout, size 12 to 16, compl. w/equipment, \$10. PL 6-5720. A

MUFFLER for 1955-1958 Mercury, \$4.50. PL 3-0819. A

HOUSE TRAILER, 13' Aristocrat Low Liner, sleeps 4, butane stove, ice box, extras, used 1 week, \$900. YO 4-4372. A

OUTBOARD MOTOR, 2-hp, good for trolling, \$25. 672-9347 after 6 p.m. A

TENT, 10' square, \$28. Box 1002. A

WASHER, Kenmore deluxe, 15-mo-old, 8-cycles, Filter Flo, top loading, \$125 or best offer. FR 1-1980. A

WANTED TO BUY

ACCORDION, 120 bass, 371-9651. B

DICTIONARY, Webster's International, unabridged 2nd edition, copyright 1958 or later, PL 6-8413. B

TEXTBOOKS, Alexander Hamilton Institute & question & answer booklets, Box 1003. B

FREE (TO BE GIVEN AWAY)

KITTENS, Heinz, 2, female, 8-wks-old. FR 5-8462. D

RENTALS OFFERED

APT, 1-bdrm., partly furn., water & trash pickup paid, \$75. OS 6-9462. E

CABIN, Lake Arrowhead, 1/2 mi. to lake & village, fireplace, patio, all utilities, \$50 wk. 379-2504. E

CABIN, Crestline, near Lake Gregory, sleeps 6, June to Sept., \$60 wk. EX 1-2040. E

HOUSE, 1-bdrm., redecorated. Hawthorne, \$95. DA 3-4116. E

HOUSE, 2-bdrm., fenced yd., Inglewood, \$135 mo. OR 8-3461. E

CABIN, sleeps 12, modern, Green Valley Lake, \$60 wk. 324-5961. E

APT, 2-bdrm., unfurn., disp. carport, \$115. 675-5898. E

HOUSE, 4-bdrm., near Northrop, gardener unfurn., \$130 mo. TE 3-2512. E

HOUSE, 2-bdrm., Inglewood, \$115 mo. OS 5-6206. E

TRIPLEX, 2-bdrm., aar., free washer, water & refuse pd., July 15, \$95 mo. 679-7250. E

APT, 1-bdrm., custom decorated, sub. parking, pvt. deck & pool, \$115 mo. 373-1143. E

APT, unfurn., 2-bdrm., pool, patio aar., \$115 mo. DA 9-5986, DA 3-1946 after 4:30 p.m. E

DUPLEX, 1-bdrm., 2 miles from Norair, unfurn., aarage, disp., fenced yd., 1 child ok, \$80 mo. OR 4-0755. E

APT, 2-bdrm., disp., aar., \$97 mo. 675-1982. E

APT, furn., 2-bdrm., in Palms area, disp., \$150 mo. VE 8-5508, UP 0-8414. E

RENTALS OFFERED

APT, new unfurn., 3-bdrm., 1 1/2-bath, patio & aar., near Northrop, children ok, \$160 mo. OS 5-7938. E

APTS, adults, 2-bdrm., 2-bath, dishwasher, aar., patio, no pets, Redondo, \$140 mo., less on lease. FR 4-4805. E

APTS, 2 & 3-bdrm., furn. & unfurn., 1 1/2-bath, pool, billiard room, Inglewood, \$139.50 mo. OR 2-6244. E

APTS, 2-story, 1 1/2-bath, pvt. patio, sun-deck, rec. room, close to Northrop, \$110 & up. OS 6-0615. E

PERSONALS

EXPRESSIONS of sympathy & understanding extended by my friends at Northrop over the recent passing of my father have been deeply appreciated. DOROTHEA M. WOOD. L

THANKS to all of you for your thoughtfulness & kind expressions of sympathy at a time when it was deeply appreciated. BILL SCHRAMM. L

OPENING in A & E Flying Club, \$200 initiation, 50-member limit, for details 324-2992 after 5:30 p.m. L

WILL transport auto. to Washington, D.C. area 2nd week in July, reasonably. Box 1004. L

DOMESTIC HELP needed in vicinity of Van Ness & Redondo Beach Blvd. for a few hours on Saturdays to do general housework, references & own trans. desired. DA 7-0872. L

WOMAN w/1 or 2 children working days to share home w/woman & 2 children working nights share expenses, South Bay, must like animals. Box 1005. L

FOR SALE OR TRADE

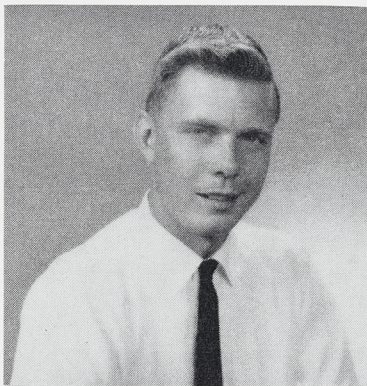
LOTS, 2 60'x134' frontage, near hot mineral spa project, utilities, streets, \$8500 or trade equity for down pymt. on home, Lakewood or Paramount. ME 4-4102. M

NORAIR MAN'S SON APPOINTED TO NAVY FLIGHT

Young Joel Payne, proud son of proud dad, Dick Payne, Norair Cost Accounting, has been selected for the U.S. Navy's NAVCAD program.

Many Division people will remember the younger Payne as a between-schools-worker in Process Paint and Upholstery, the Metal Bond shop and in Time-keeping.

Joel attended El Camino and Long Beach City College where he received his associate arts de-



JOEL PAYNE

gree, majoring in English literature.

He has been assigned to pre-flight class 449, which convened June 17 at Los Alamitos. His first training will be held at Pensacola, Florida.

He will receive his gold wings and be commissioned an ensign at the completion of his training, which takes approximately 18 months.

Dad is a 14-year man at Norair.

NORTHROP NORAIR NEWS

VOL. 22 NO. 10

3901 W. Broadway, Hawthorne, Calif. 90250

A NORTHROP CORPORATION
PUBLICATION
NORAIR DIVISION
Published every other Wednesday

CHARLES BRADFORD, Editor

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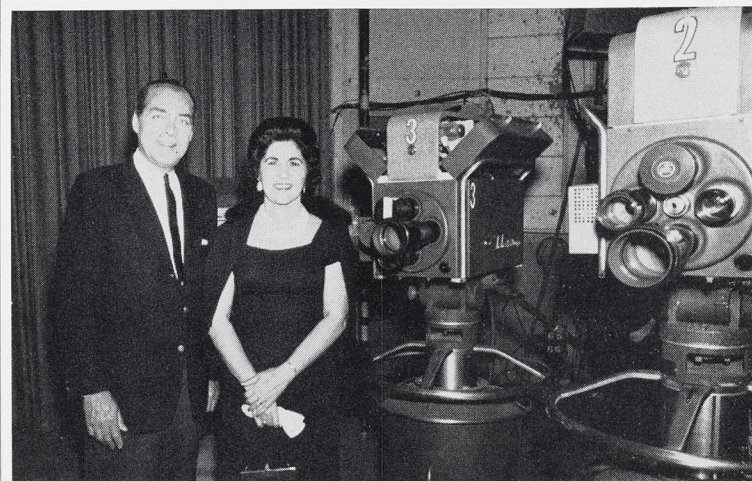
Swimming Free Via NRC At Leuzinger High Pool

It's summertime again and if proof is needed, just drop in at the Leuzinger High School outdoor pool on Monday, Tuesday, Wednesday, or Thursday nights where free swimming is under way under the auspices of the Northrop Recreation Club.

All personnel and their immed-

iate families are invited to participate, states Bernie Doyle, NRC president.

Swimming time is from 4:45 to 6:45 p.m. Bring towels. Bathing caps required for women. A professional lifeguard will always be in attendance.



PICK AND CHOOSE—Carmela Moniello, secretary to R. G. Longaker, chief, New Product Marketing, will be on the new Jack Barry "Pick and Choose" television show to be taped July 3 and July 10 at 8:30 p.m., Channel 5. The guest celebrities will be Joanna Moore, Herschel Bernardi, Bob Crane, and Bethel Leslie. Carmela stands to win some mighty handsome prizes. All personnel are urged to tune in and cheer her home a big winner. Photo shows Carmela with Mr. Barry in the studio during pre-liminary show session.

Cafeteria V-I-P Days

(Continued from Page 1)

the family and how many. Come in at gate 5, park in Company lot, sign in with the Plant Protection officer and enter through cafeteria west door.

Plus regular cafeteria bill-off-fare.

Week of July 13 through 17: Fashion show by Sears featuring vacation togs and equipment.

Coffee refills free. (Any number of cups.)

Bonus time. If you are at the cash register when the bell rings, your meal is free.

Plus regular bill-off-fare.

Week of July 20 through 24:

Food demonstrations, tasting and sampling as in the super markets.

Prize drawings. Tickets will be given at day and night shift lunch periods with winning numbers posted on the cafeteria bulletin board the following day.

Coffee and doughnut in the morning, 15 cents plus tax. Pie ala mode for lunch and dinner, 20 cents plus tax.

Week of July 27 through 31:

Power and garden tool show.

Choice of three big economy breakfasts, 35 cents plus tax. Coffee refills free.

That is Cafeteria V-I-P Days for July. August, Freddie assures, will be just as variety-packed with a combination of bargain meals, bargain snacks, bonuses, diversionary entertainment.

The other entertainment and service features Freddie has considered include free caricatures and charcoal portraits of patrons, free snapshot photographs, Auto Club trip planning, whiz mathematicians, magicians, Kingston trio-type groups.

There has been serious attention given to having a smorgasbord on certain days.

"People's tastes vary," said

Freddie. "But generally Northrop people like the same things. Our 'audience' is aerospace. And our V-I-Ps are our friends."

Freddie doesn't want V-I-P Days to sound like a grab bag of goodies just to sell more meals. Actually, he is following the specialty service trend of the times by broadening mealtime usefulness to the patron.

"Our food, the way we serve it and our strictly competitive price schedule, is tuned to the needs of busy aerospace workers," says Freddie. "If we can also entertain, educate, and inform without sacrificing any part of the basic requirement we feel that we are making a worthwhile contribution and doing a substantially better job."

Cafeteria regular luncheon and dinner menus are posted on bulletin boards in plant work areas.

Cafeteria hours are from 5:30 to 7:55 a.m., 11 a.m. to 1:05 p.m., 3 to 5 p.m., 7:45 to 8:15 p.m., and 8:30 to 9 p.m. During Family Dinner Week, July 6 through 10, dinner will be served from 7 to 8:15 p.m.

ANGEL-YANKEE GAME SEEN BY ANTELOPE M-C

The Antelope Valley Management Club tried big city smog and freeway traffic on for size and found their way via chartered bus to Dodger Stadium on June 5 to watch the Angels engage the New York Yankees, it is reported to the News by Dean Burch, Antelope Valley Management Club vice-president.

Thirty-five made the trip, some of them seeing Chavez Ravine for the first time.

A good time was had by all with the result that new events and more of the same is being planned for the near future.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, July 15, 1964

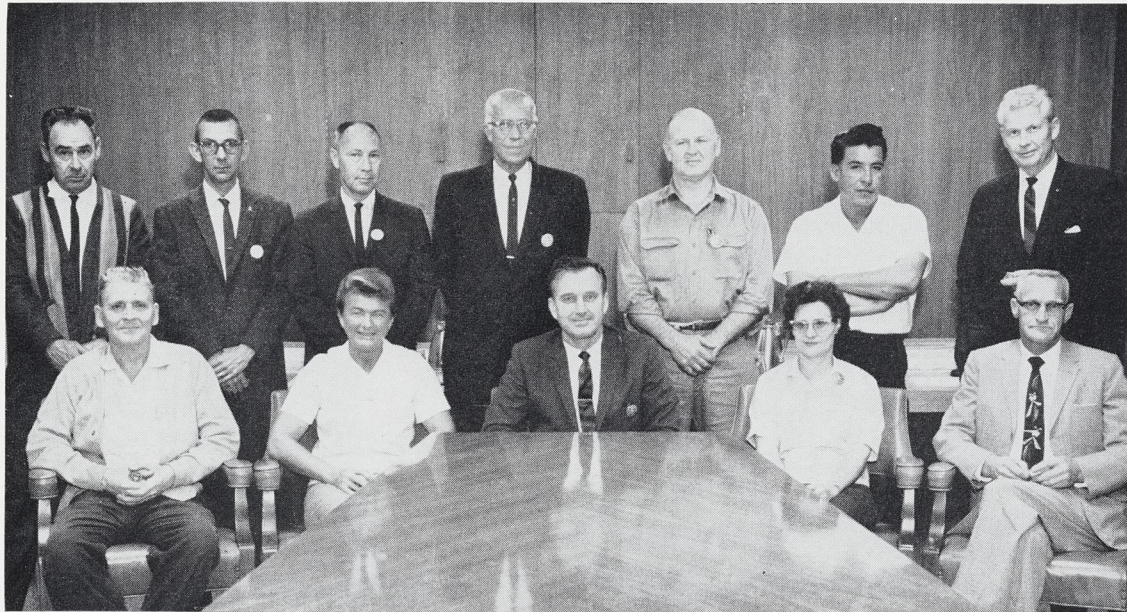
HAWTHORNE

EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO



TWENTY-YEAR PIN PRESENTATION—Division personnel who have recently achieved 20-years' service were presented with their diamond pins by Division General Manager Dick Horner in a special ceremony. First row, from left, S. C. Jackson, H. S. Blaire, Mr. Horner, Margaret Crumbliss, and Marvin Crum. Second row, left, Thomas Spence, Milton A. Perry, Bill Richardson, H. L. Taylor, Joe F. Brandenburg, Carlos Uribe, and W. D. Schramm. Headlines of the day when this group hired in were about Black Widow in service in the South Pacific, and the tremendous success scored by the NRC Victory Mardi Gras staged in the Shrine Auditorium.

T-38 TRAINER ON DISPLAY

DISTRICT SCOUTING TO PRESENT "AMERICAN HERITAGE SHOW"

Flags, the T-38, military bands, Eagle Scouts, and missiles will be assembled into a patriotic "American Heritage" show for the public at El Camino College stadium on Saturday, July 18, at 7 p.m.

Twelve thousand seats and free parking are available to the pub-

lic. Admission is free.

The Centinela District of the Los Angeles Boy Scout Council is presenting the show. Chairman of the District is Norair Manager, Administration, Thomas L. McCarthy.

All Northrop personnel and their families and friends are

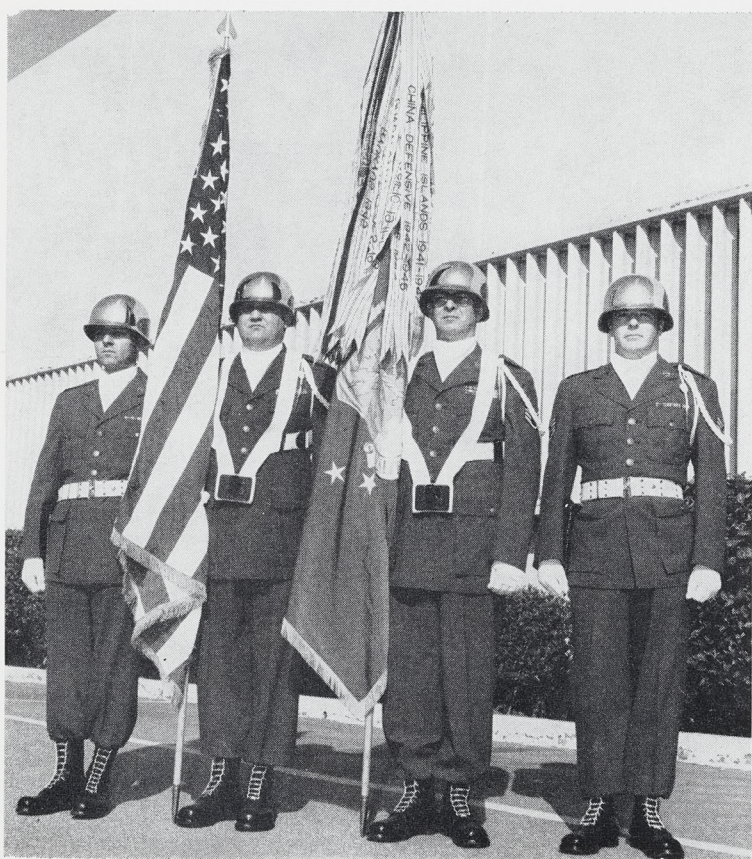
cordially invited, Mr. McCarthy said.

In listing the headline events scheduled for the day, it was revealed that a USAF T-38 Northrop trainer will be on static display as well as a Regulus missile. Other highlights include the Fleet Marine Force Drum and Bugle Corps, U.S. Air Force Color Guard (see photo), Inglewood Elks Lodge 1492 Flag Ritual team, U.S. Navy band from San Diego, Westchester Concert chorus, U.S. Army band from Fort MacArthur, Knights of Dunamis Eagle Scout Association Flag team, and Westchester Youth band.

Men and boys holding the Eagle Scout rank will be honored guests for the evening and will be asked to take part in a massive Eagle Scout recognition ceremony, Mr. McCarthy said.

The American Heritage show will be part of an all day Jamborally at Alondra Park and El Camino College. At the same time the National Jamboree in Valley Forge, Pennsylvania will be in session with 50,000 Scouts participating at that national encampment. Both of these events and others throughout the country have been coordinated to focus attention on the need for grass roots patriotism, in line with the Boy Scouts oath which begins with, "On my honor, I will do my best to do my duty to God and my Country..."

The day's activities get under way when the display areas are opened to the public at 1 p.m. A swim meet is next at 3 p.m. and the American Heritage show is at 7 p.m.



THEY WILL SET THE THEME—Proud color guard of volunteers for the American Heritage show from Headquarters Air Force Space Systems Division, Los Angeles Air Force Station, are shown bearing Old Glory and Air Force battle streamers. From left are SSgt. Robert Calib, TSgt. Raymond R. Kerfoot, SSgt. James E. Reavley, and SSgt. Buddie P. Bolton. For details of the all-afternoon, all-evening, all-invited show, see story adjoining.

REGISTER AND VOTE DRIVE UNDERWAY

GOOD CITIZENSHIP COMMITTEE

The formation of the Northrop Good Citizenship committee to encourage every employee to register and vote in the coming election has been announced by Northrop President and Chairman of the board Thomas V. Jones.

With membership representation from the Corporate office, Norair, Ventura, and Nortronics Divisions, and Northrop Space Labs, the committee in a series of planning meetings has arranged for a corps of vote registrars to be stationed at strategic locations throughout the plant during the week August 10-14 in order that all Norair people who must re-register for the November presidential election may conveniently do so.

In announcing the formation of the committee Mr. Jones stated, "The United States is founded upon the principle that the best possible government results when free men make a free choice. On November 3 you will have the opportunity to cast your ballot

for the candidates and party of your choice.

"Each year millions of people lose their right to vote because they fail to register or re-register properly. If you have moved recently or if you failed to vote in the last election, it's quite possible you have already lost your right to vote and don't realize it.

"The Northrop Good Citizenship committee will urge you, as a responsible member of your community, to check your voter registration now and be certain it is up to date and correct.

"The Northrop Good Citizenship committee also urges you to join them in promoting voter registration among your fellow employees, friends, and neighbors. It takes less than three seconds to ask someone, 'Have you registered to vote?', and you will be doing your nation a service by doing so."

Reminders to register and vote will accompany paychecks each week beginning last Friday and continuing through September 4.

Vote registration booths with registrars from the County Registrars office will be on the grounds from August 10 to 14. They will be located:

At the east end of Plant One, near the Credit Union.

In the breezeway between the cafeteria and the Engineering Science Center.

Gate 7 at the east end of the Engineering Science Center.

At the east door of the new assembly building.

(Continued on Page 4)

WAGE INCREASE FOR HOURLY PERSONNEL

Norair hourly rated personnel will receive fatter pay envelopes henceforth.

Richard E. Horner, Corporate senior vice-president and Norair general manager, has announced a general wage increase for the Division of from 5 to 9 cents an hour depending on labor grade and classification.

The minima and maxima of the hourly rate ranges were also increased accordingly.

The new rates will be effective retroactive to May 25.

Increase will be contained in the regular paychecks to be issued July 17. Retroactive checks, however, will not be issued until July 31.



T. L. MCCARTHY

CHANGES DUE FOR SALARIED SAVINGS PLAN

Participants in the Northrop "Salaried Employees' Savings Plan" are advised that as of August 3, changes in contributions within the minimum and maximum amounts may be made, it has been announced by Dave Stadler, chief, Personnel.

Salary base for figuring top allowable contribution will be that in effect for individuals on May 1, 1964, Mr. Stadler stressed.

Changes in allocation between the Bond Fund and the Stock Fund may also be made at that time.

Change cards are to be completed and filed with the Personnel office, Plant One on or before July 31 deadline.

Cards are available at the Plant One Personnel office, extension 642, or from Compensation Administration branch office, Engineering Science Center, extension 514.

We Doff The Fedora

For many years I have considered the General Safety committee at Norair Division to be one of the most effective and productive groups engaged in personnel relationships.

Now more than 10 years in existence, this group, chaired by John Breneman, manager, night Operations, is dedicated to the task of eliminating the causes of accidents at Norair and is one of the major contributions



to our good safety record. At present there are some 24 members of upper and middle management who are active on this committee. I have observed them in session on many occasions and I am proud to enumerate their splendid accomplishments.

Probably the major reason for the success of this committee is in proper planning. Preceding each monthly meeting, Norair

chief, who came to Northrop even before the flagpole in front of the building, sits on this committee lending his long term know-how to the safety program.

Whitey Gillibrand, superintendent of Maintenance and Construction, is also an important member as many of the deliberations result in necessary action by the Maintenance section.

From the Engineering Laboratories group, Royal Jackman, chief, lends his talents as a faithful committeeman.

Because a good safety program is directly related to overall costs of staying in business, it is natural to find in the presence of Bud Kinsey, chief of Accounts Receivable and Accounts Payable, a staunch member of the General Safety committee. From Subcontract and Special Products Operations group we find Bill Minner, superintendent, representing this important manufacturing group. From Plant Protection group there is Chief Bill Parker in his place at all meet-

By John B. Clark

Norair Director, Industrial Relations

Safety Engineer Lee Johnson (an important active member) sees to it that members are furnished with a complete agenda to be discussed at the forthcoming meeting. At these meetings hazardous conditions which might lead to accidents are reported by the individual members so that, in truth, safety becomes a real concern to these dedicated men.

In addition to Mr. Breneman and Mr. Johnson, we find Roy Balling, a Northrop man with an early seniority date who is now Corporate Insurance administrator.

Another loyal member of the group is our Norair Medical Chief, Doctor Dick Krebsbach, who because of his profession, has more than a passing interest in providing safe working conditions here.

Representing Quality Control is the ever faithful Ed Bates. I do not recall Ed ever missing a general safety meeting.

Tom Chittenden, Materiel night

ings of the General Safety committee and from Fabrication Operations the committee boasts its superintendent, Roy Prueter. Oldtimer and faithful Al Carr, superintendent, T-38 Assembly Operations, is also among those present and in there pitching. Tooling Superintendent John Shanelec and Dale Steen of the Operations staff along with Rex Thornhill, superintendent, Advance Production and Weld group, Earl Nickles, superintendent, Processing Operations and foreman, safety committee chairman, and Bob Howorth, superintendent, T-38/F-5 Electrical and Center Fuselage Assembly Operations, just about completes the full membership of this important committee. If I have inadvertently omitted any person who is also a member, please forgive me.

We are pleased to doff the fedora to these fine gentlemen. Yes, safety is their business and, thank you, business is good.

"Paneful" Glass Doors



SAFETY IN ACTION—Dick Fields, kneeling, and Orbie Blair, Flight Support Operations, measure front door to Flight Dispatch waiting room in recommending that super clean pane be de-hazardized by addition of push bar. Company fleet passengers, always in a hurry, were in danger of inadvertently walking straight through giving rise to another kind of pain entirely. Alert shop committeemen are to be thanked for correcting the situation.

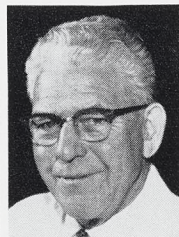
Shop Safety Men Reveal Secrets Of Their Success to News Editor

The foundation of a successful industrial safety program rests squarely on the shoulders of the people who, day in day out, man the machinery, the tools, the test equipment, the transport . . . It is here—in the shop—that safety fails or flourishes, depending on each man's attitude . . . At Norair, shop committees serve this level as prime communicator in carrying the message of safety.

To open the door so that readers may sample the years-given wisdom of safety committeemen in action, News Editor Charles Bradford interviewed 10 of the members and asked this question:

What is the most important duty in shop safety committee work?

Bill Phillips, Quality Control, Mariposa.



"Get participation of the people in your area. Get them to make safety suggestions. They come up with some very surprising things . . . Make certain that pallets are in good shape and not broken . . . Most people are safety minded . . . Good housekeeping is where you actually begin . . ."

Bill has been with Northrop since 1941. He has had 15 years of committee work.

Opal Shuman, Chem Mill and Hydraulics.



"The most important part of safety committee work as I see it is to practice safety as we go along . . . The safety committeeman's work at Norair is easy. We get splendid cooperation from all people in our part of the shop in reporting unsafe working conditions . . . This pays off. We haven't had an accident for some time."

Opal has been at Norair for one year. She has served on the safety committee for six months.

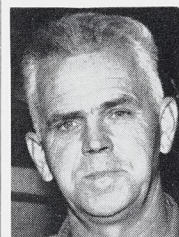
Floyd Cameron, Boeing Wing branch.



"I think the most important duties in safety committee work are to make sure that all personnel obey safety rules, wear the proper safety equipment, and are trained for the job they do . . . It is especially important that operators of cranes and hoists be certified and keep up with the new equipment as it comes in . . . Serving on a safety committee makes a better worker out of a man . . . When people realize that safety is on the job, conditions get better right away."

Floyd is a 10-year man. He has been a member of the safety committee for the past six months.

C. H. "Charley" Jackson, Weld shop.

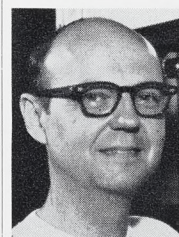


"I never thought of any one part of safety committee work as being the most important . . . Look for general hazards such as parts protruding out in the aisle . . . It's very important to keep the areas around elec-

trical switchboxes clear and uncluttered. I am biased on grounding of all electrical equipment from soldering irons on up . . . We have a face shield program now under way to protect people who are using grinding wheels. Get wonderful cooperation . . . People here must be well founded in welding safety. The best practice is to follow the manufacturer's instructions."

Charley has been with Northrop since 1947.

Al Federwitz, Sheet Metal shop, heat treat area.



"Pay strict attention to safety suggestions from the personnel and act . . . Make consistent tours of the department to observe safety conditions as they exist. My safety foreman John Lynn and I do this regularly . . . A fine suggestion by Herb Chastain was recently put into effect. This was to bring all workers to the office, two at a time for 15 minutes of safety talk with the foreman."

Al has been with the Division for 11 years. He has been on the safety committee since February.

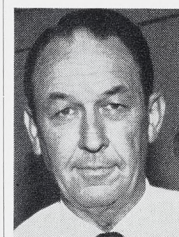
Mel Allbrandt, Structural Laboratory branch.



"Tour the areas on a regular basis and while touring talk directly to the men at the bench and draw them out, then communicate this up the line for remedy . . . Good housekeeping is definitely a part of safety. Sloppy conditions increase the hazards . . ."

Mel, a structural test engineer, has been one and a half years with Northrop. In his area, all personnel rotate on the safety committee serving 16 weeks each.

Dick Fields, Flight Support Operations.

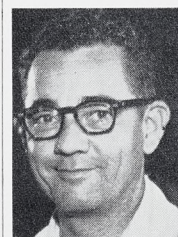


"Our view of safety down here has to do mostly with Company passengers flying on Company airplanes . . . Their safety and comfort is our prime consideration and

as with a regular public air terminal we must see to it that they do not come to harm boarding or getting off the airplanes . . . Keeping up the new equipment as issued and keeping current with the phenomenon of high speed and high altitude flight is an important part of the job. Be alert."

Dick has been with Northrop for 24 years. He has 10 years safety committee service.

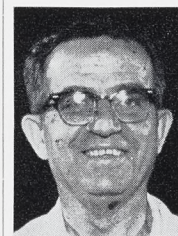
Tony Rodriguez, milling machine operator.



"See to it that the right setups are used and the right tools . . . Stock, even though it is issued as the same size, should be individually miked before being worked on and nothing left to guesswork . . . Keep floors clean of oil . . . Safety shoes are a good idea."

Tony has been with Northrop for twelve and a half years.

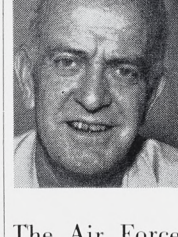
Sam Dimitry, hydraulics checkout mechanic, Palmdale.



"Talk about safety equipment . . . Follow safe practices and consistently remind people of safety . . . The very presence of safety committeemen makes people more aware of possible hazards . . . Committee meetings are very important and a safety committeeman should attend regularly and be active. Wear safety glasses."

Sam has been at Northrop for 10 years. He has engaged in safety committee work both at Hawthorne and Palmdale.

Kelly Burke, factory specialist, Norair facility, Edwards Air Force Base.



"We won awards at Edwards in 1956, 1957, '59, '60, '61, and '62 and I think good housekeeping deserves most of the credit . . ."

The Air Force is very cooperative here. Their teams work with our teams especially in checking on conditions that might cause fires . . . Also, I think talking about our program is an important part of the safety committee job. Lead the way."

Kelly first worked with Northrop in 1936 in the Pickwick shop at Mines Field. He started with the present Company in 1942.

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STOP . . LOOK . . LISTEN!

Know your job, your equipment, your surroundings. When you are in doubt about the "safe way," ask your supervisor.

Report for work physically fit.

Wear protective safety clothing and use approved safety devices where required.

Report unsafe or unsanitary conditions, poor housekeeping, and unguarded equipment to your supervisor or the Safety Engineering department immediately.

When injured, report immediately to the medical dispensary nearest to your work area for treatment. Report all industrial injuries, however slight; also, report the cause of any accident to your immediate supervisor.

Walk, don't run, up and down stairs, keeping to the right and using the handrails.

Keep to the right in production area aisles, avoiding the walkways within department work areas.

Refuse to indulge in fighting, scuffling or horseplay, or like activities.

Use compressed air only for jobs for which

it is intended, and never to blow dirt, chips, or dust from personal clothing or body.

Never use compressed air to empty containers of liquids.

Use company elevators only when you are authorized to do so, and after you have received proper operating instructions.

Never distract machine operators; their skills require intense concentration.

Scrub your hands with soap and water or company approved cleaning preparations only, avoiding solvents, thinners, naphtha, etc., which cause dryness and skin rashes.

Use approved protective hand creams when working with solvents, oils, paints, epoxy-resins, or other skin irritants.

See that all electrical switch panels in your immediate work area have a complete clearance of at least 36 inches at the front and sides.

Take all warning signs seriously.

Keep flammable and poisonous liquids in safe containers properly labeled with standard warning labels.

Safety on Company Time

A Message from the President:

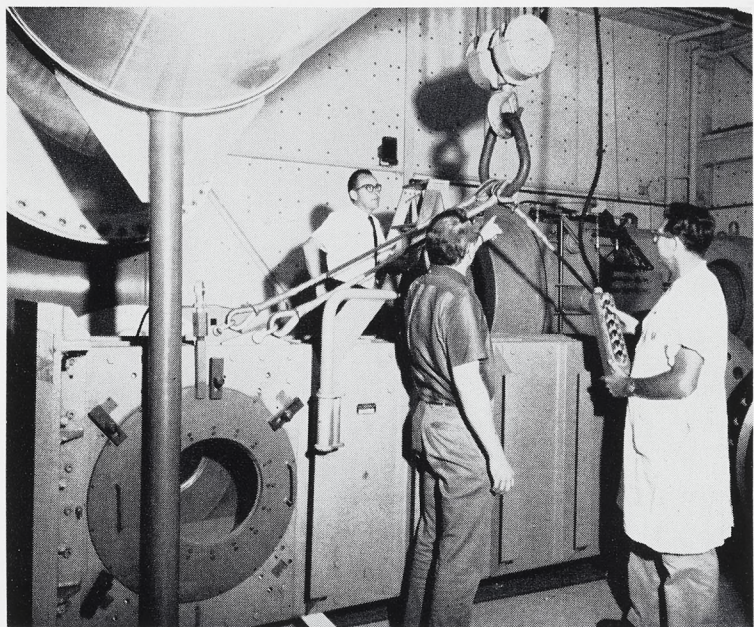
Northrop has a good safety record. We must do all we can to maintain it through diligent application of safety rules and regulations and the constant practice of good safety habits . . .

Our safety program to be successful, must instill in everyone habits which will be strong enough to safeguard all persons from accidents.

Your Safety organization and your safety committees are constantly working with supervision and personnel in the elimination of work hazards. Your share in this responsibility is to know how to perform your job the safe way, not only as it affects you, but also your fellow workmen.

There is a safe way to perform your job. Learn the SAFE WAY, WORK THE SAFE WAY.

Northrop Safety Manual



IS THIS SAFE PRACTICE?—No, says J. A. Ritschel of the Research Safety committee, front, to fellow committee members Harry Graves, coordinator, and S. E. Ton, as they inspect hoist sling being used to lift specimen chamber in the hypersonic wind tunnel. Reason, sling angles are near 20 degrees. Safe limit is 30 degrees with 45 and up preferred. Such close attention to detail makes for a successful program.



SAFETY MEN FROM EDWARDS—Shown in regular session as they discuss flight test safety measures at the desert are, from left, seated, Jack Farley, base administrator; Louie Weltz; Kelly Burke, chairman; and W. F. McGrath. Standing, from left, C. G. Soihl, F. M. Harrison, W. C. Sweet, R. L. Eisenbraun, and J. S. Lauder. Edwards leads the parade for Norair safety awards. A winner every year of operation there since 1956.

Shop Committees Are The "Front Line" Troops



Safety Committeeman's Creed

HAWTHORNE OPERATIONS

—All-out for a Blue Ribbon Safety year are, from left, seated, Antonio Zepeda, Alice Sirokman, Opal Shuman, Tony Rodriguez, and Floyd Cameron. Standing, from left, Leo Sacks, chairman; Paul Hoskins, Al Fed-

erwitz, George Putnam, safety engineer; Lonnie Foreman, and Byron Billings. On vacation, Roy Bishop, Martin Childers, Clinton Whelan, jr., Alton Whittington, and C. H. Jackson.

TECHNICAL COORDINATORS

— More Blue Ribbon planners at work. From left, Harry Graves, Elmer Cain, Clarence Pohl, Lee Johnson, chief safety engineer; Royal

Jackman, chairman; Jessie James, William Higbee, Ralph Jenney, and Cal Davis. On vacation, Chuck Hohn, committee secretary.

PALMDALE

— Award winning safety stalwarts, from left, front are E. G. Minghelli, J. W. Strow, Maxine Brady, E. V. Brandenburg, A. L. Smith, and O. P. Rich-

ter. Back row, left, N. L. Larson, R. M. Braffett, L. P. James, J. R. Prenter, L. M. Hamil, and E. N. Clipper-ton, chairman.

MARIPOSA'S AWARD WINNING TEAM

— From left, seated, L. E. Hoen, H. W. Christensen, R. J. Staley, Tom Chittenden, chairman; Fred Lorenz, H. J. Hayes, R. E. Strong. Standing, l-r, M.

C. Cooper, O. L. Crawford, Kenneth Goldenstein, B. P. Robson, safety engineer; G. F. Seybolt, R. A. Whittemore, W. F. Phillips, and Ralph "Hammy" Rhein.





RIDES WANTED

7 a.m. — 3:45 p.m.

LA BREA & HYDE PARK BLVD., Inglewood. Geo. Goodenkauf, ext. 2173, OR 4-7743. 2

PRAIRIE AVE. & 182ND ST., Torrance. Would like ride mornings. Earl W. Moore, jr., ext. 2006, 371-8167. 2

TORRANCE BLVD. & 208TH ST., Torrance. John A. Cable, ext. 2200, 320-2827. 2

AVALON & VICTORIA, Gardena. R. Thomas, ext. 2622, DA 3-2264. 2

PIER AVE. & MARSHALLFIELD LANE, Redondo Beach. Frank M. Garcia, FR 9-4553. 2

CHAPMAN & VALLEY VIEW, Garden Grove. O. N. Martin, ext. 2044, 714-897-0898. 2

7:30 a.m. — 4:15 p.m.

WESTERN & LA PALMA, Buena Park. George Smith, ext. 2675. 3

8 a.m. — 4:45 p.m.

ROSECRANS & LONG BEACH BLVD., Compton. Carol Gross, ext. 528, NE 2-7543. 5

RIDES OFFERED

7 a.m. — 3:45 p.m.

CHAPMAN & VALLEY VIEW, Garden Grove. O. N. Martin, ext. 2044, 714-897-0898. 12

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

HOUSE, 3-bdrm., aar. & 3-car carport, patio, block wall, big trees, sell GI or FHA, near Van Ness, 111th St. \$23,000. 754-4384 after 6 p.m. A

TV, 21", \$25. OS 9-1550. A

BUTTONHOLER & auto. zigzag, for slant-needle 301 model Singer sewing machine. w/2 sets of templates, \$15. OS 5-5522. A

TUNER-AMP. Harmon Kardon 12-watt AM-FM. \$60. OS 5-3792. A

HOUSE, Manhattan Beach, 3-bdrm., 1 1/2-bath, nat. wood cab., fireplace, lae. fenced yd., patio, trees, near schools, dbl. detached aar., \$26,500. FR 4-4019. A

TOOL CHEST, 26" Gerstner w/precision inspection tools. \$420. 675-8818. A

BED, rollaway, twin-size, coil springs & mattress \$15. OS 9-6982. A

POODLE, female, silver, 3-yrs-old, AKC reg., to a good home. \$50. 676-7729. A

CEMETERY LOTS, 4, Glen Haven Memorial, Valley vicinity, cur. price, \$225 ea., \$700 for all 4. DA 4-5774. A

TYPEWRITER, desk-type, Underwood elec., \$150. PL 6-5720. A

TENOR SAX, Buescher, \$150. FR 4-6003. A

FORD, 1957 Skyliner, h/top conv., auto. trans., r/h, p/s, p/b, 2 new w/s/w, 1-owner, \$750. OR 0-8453. A

DINING TABLE, w/leaf, blonde, 6 matching black upholstered chairs incl. 1 captain's chair, \$30. OR 3-2359. A

FORD, Galaxie 500, 1962, h/top coupe, air cond., 24,000 act. miles, \$1850. OS 6-6650. A

FLASH UNIT, BC, Sears, folding reflector & 10 doz. flash bulbs, \$10. Box 1101. A

HI-CHAIR, & doorway gate, \$10. 676-4020. A

SPEEDWRITING TEXTBOOKS, complete set, & typina brushup course, \$20. 374-3283. A

RIFLE, Remington .244 cal., var. scope 3-12, \$125. OS 5-7729. A

PUPS, collie & Labrador retrievers, 6-wks-old, \$10 ea. EA 2-3095. A

FORD Galaxie, 1959, auto. trans., new V-8 eng., new tires, \$950. 323-6004. A

TRAIN, elec., American Flyer, 15 straight & 20-curved track, unmounted, big transformer, \$50. FR 8-2810. A

PUPS, collie-shepherd, \$10 ea. 378-4098. A

FORD, 1954 conv. 2-dr., automatic, \$150. FR 6-1356. A

FOR SALE

FALCON Futura, 1962, 30,000 act. mi., r/h, orig. owner, \$1450. DA 9-3593. A

ROCKER, beiae, swivel-type, Nauaahyde & fabric comb., \$25. 679-2983. A

TOP CARRIER for Volkswaen. oak slats, \$18. 478-5732. A

CADILLAC Coupe De Ville, 1958, low mileage, \$1250. 457-2979. A

TIRES, 5, near new, 8:50x14, 4-ply Good-year first line, b/w, \$24.50 ea. 377-1094. A

PLYMOUTH Belvedere, 1960 4-dr. sedan, w/s/w, auto. trans., \$800. 566-2929. A

TRUCK, 1955 Ford 1/2-ton pickup, \$450. 323-6102. A

LUGER, .44 mags., matched set, pistol & carbine, all access., 20 rounds ammo., \$175. 676-4251. A

SLOOP, 26' Thunderbird, 1963, many extras, \$5500 or best offer. EX 8-1146. A

OUTBOARD MOTOR, Mark 50, 40-hp, w/gas tank, \$150. 323-8298. A

LOTUS ELITE, 1961, 13,000 ori. miles, \$3195. GR 2-8377. A

METROPOLITAN, 1960, 30 mpa, \$525. TE 3-2512. A

DINETTE SET, Virtue Bros., gray & white, 3 chairs, \$15. OS 6-1673. A

HUB CAPS, Ford & Chevrolet, \$3 set. 645-2118. A

FORD Falcon deluxe station wagon, 1961, r/h, 35,000 mi., \$850. FR 5-8164. A

CADILLAC De Ville, 1957 sedan, all power, extras, \$650. 714-539-6203. A

BOAT, 18', Carvel-planked, trad-type aux. sloop, sleeps 2, small galley, extras, \$2250. 372-4907. A

LAWN MOWER, professional-type, 20", ori. trimmer, clutch, chain drive, front grass catcher, \$100. HA 5-9532. A

HOOD, for range, Puriton-Electronic, 36", copper-tone w/light, \$45. PL 4-1964. A

PONTIAC, Ventura sports coupe, all power, V-8, \$1795. OS 6-9627. A

HOUSE, Hollypark, 3-bdrm., 1 1/2-bath, fireplace, paneling, lae. kitchen, many extras, \$24,500. 754-9555. A

WEIGHTLIFTING SET, 1 barbell, 4 dumbbells, 1 steel & Nauaahyde press bench, 255 lbs. assorted wats., \$55. 430-4407. A

PIANO, apt-size, light wood finish, \$250. 376-2690. A

POLE LAMP, Early American, brass w/3 milk glass lanterns, \$15. DA 7-0872. A

MINK SKINS, 4, autumn haze, \$100 or best offer. DA 9-5269. A

RANGE, Gaffers & Sattler, 39", timer clock, ariddle, \$75. FR 7-4770. A

PLAYPEN, folding-type, 1-yr-old, \$9. 347-0888. A

T-BIRD, 1959 conv., full power, new paint, \$995. 329-3172. A

PONTIAC Tempest LeMans sport coupe, 1963, auto., p/b, p/s, w/s/w, V-8 326 eng., \$2150 or best offer. DA 7-8994. A

APT. deluxe, 2-bdrm., 1 1/2-bath, all elec., carpets, drapes, built-ins, pvt. balcony, terms, \$17,500. 324-7377. A

TRANSMISSION, Falcon stick, clutch, rear end, comp., 3.50-1 ratio, \$60. AT 2-9360. A

CORVAIR 1960 4-dr., automatic, radio, \$675. FR 6-1043. A

FORD coupe, 1960, 352 cu. in. eng., 3-spd., 1-owner, new w/s/w, \$850. FR 5-3257. A

STOVE, O'Keefe & Merritt, 4-burner, auto. timer, \$50. 327-2279. A

LIMIT—ONE ITEM

T-BIRD, 1960 h/top, full power, \$1695. FR 5-4448. A

DOG, male, poodle, black, ped. w/papers, 9-mo-old, \$100. NO 2-2005. A

AIR COMPRESSOR, portable w/hose & spray gun, \$50. FR 8-3990. A

TV SET, 21" Philco, 3-yrs-old, console model, \$70. ME 3-2395. A

VACUUM CLEANER, Kenmore, upright tank-type w/brushes, \$13. 371-9730. A

FORD Country Sedan, 1959, station wagon, 4-dr. V-8, r/h, auto., w/s/w, 62,000 miles, \$650. 673-2158. A

HOME, by owner, Palos Verdes, 3-bdrm., 2-bath, walled yd., patios, landscaped, near peninsula center & new high school, \$32,000. FR 7-3578. A

BICYCLE, boy's 26", \$15. OS 6-2597. A

FORD conv., 1954, r/h automatic, V-8, w/s/w, \$200. OS 5-1708. A

WANTED TO BUY

TELESCOPE & tripod, 175 power or larer. FR 8-3788. B

TURNTABLE, Gerrard, speakers, tuner. EX 6-4424. B

GAS TANK, oblong 3-gal., butane. DA 3-9586. B

RECORD ALBUM, Columbia CL551, Music Until Midnight, Mitch Miller, Percy Faith. FR 2-3827. B

RENTALS OFFERED

HOUSE, 2-bdrm., built-in stove, 10 mins. from Northrop, \$125 mo. FR 4-5739. E

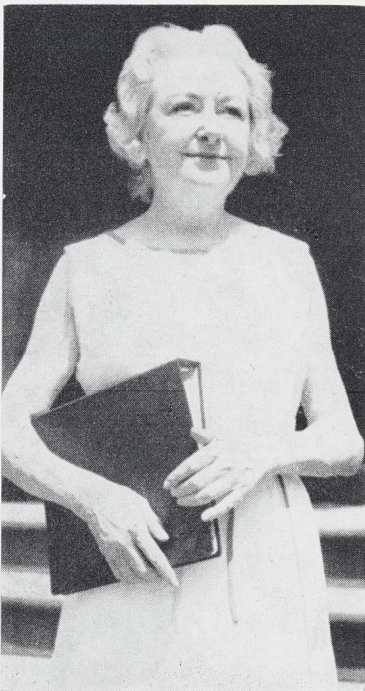
NORTHROP LOANS SECRETARY FOR POVERTY FORCE

Responding to a White House call in April for volunteers for the President's Task Force on the War Against Poverty, Northrop loaned the talents of Miss Pauline "Pat" Sullivan, receptionist and secretary in the company's Washington, D.C. office.

During the loan period of approximately 90 days, Miss Sullivan served with the "blue ribbon" group of leading industrial, government and academic specialists who were loaned to the Task Force.

The Task Force has been responsible for generating ideas and mapping out details of the Economic Opportunity Program under the direction of R. Sargent Shriver, special assistant to President Lyndon B. Johnson.

Miss Sullivan has been a member of the Washington office staff since November 1945. A native of Denver, Colorado, she served on the staff of former Senator Edwin C. Johnson of Colorado, prior to joining Northrop.



PAT SULLIVAN

RENTALS OFFERED

APT. 2-bdrm., unfurn., children ok, near Northrop, aarage, \$95 mo. DA 9-0314. E

HOUSE, unfurn., 2-bdrm. & den, No. Redondo, \$110 mo. FR 9-9735. E

APT, unfurn., aar., pvt. patio, close to bus line, newly decorated, adults, \$78.50 mo. DA 9-9195. E

APT, 1-bdrm., unfurn., patio, closed aar., Torrance, \$95 mo. FR 5-0867. E

CABIN, Green Valley Lake, modern, sleeps 12, \$60 wk. 324-5961. E

HOUSE, 1-bdrm., furn., adults, small yd., Vermont-Manchester area, \$65. PL 8-6890. E

HOUSE, unfurn., exec-type, ocean view, 4-bdrm., 3-bath, 2 levels, built-ins, 2 fireplaces, \$250 mo. 672-7928, FR 9-8440. E

APT, 1-bdrm., near Northrop, lae. rooms & closets, carpets, water & trash pd., furn., \$90; unfurn., \$80. OS 5-9695. E

HOUSE, 2-bdrm., rear, w/aarage, disp., lawn service, close to Northrop, 1 child ok, no pets, \$105 mo. OS 6-8768. E

HOUSE, 1-bdrm., redecorated, water pd., \$25 cleaning fee, Hawthorne, \$90. DA 3-4116. E

CABIN, Crestline, near Lake Gregory, sleeps 6, \$60 wk. EX 1-2040. E

APT, 1-bdrm., cus. decorated, sub, parking, pvt. deck & pool, \$115 mo. 373-1143. E

RENTALS WANTED

TRAILER, small utility, for 2 weeks. FR 4-8608. F

FOR SALE OR TRADE

FORD, 1953 conv., \$275 or trade on 1959-1961 Austin-Healey Sprite. DA 4-8663. M

FIAT ENGINE, 1958, unassembled, & 1-barrel carburetor for Chevrolet, \$50 or trade for small chest freezer, 714-897-0898. M

SWIMMING POOL 15' dia., extendable to approx. 48" deep, \$40 or trade for ping-pong table plus cash. DA 3-6717. M



TROPHY WINNER—William J. Grinnell, Norair Packaging Engineering, is congratulated by Jim Matthews, manager, Technical Operations, upon receiving the William Arnold award from the Southern California Chapter of Society of Packaging and Handling Engineers for 1963. Mr. Grinnell was commended by the SPHE for "outstanding and successful achievement in developing the science of packaging and materials handling techniques during the past year." Big award on table is yearly perpetual. Mr. Grinnell gets to keep the small trophy he is holding as his own personal property for evermore.

Harbor Cruises Arranged By Personnel Activities

Personnel Activities, Dick Pryor, general supervisor, offers a one and a half hour cruise of Los Angeles and Long Beach harbors at the very special discount price of \$1.25 a person. Regular fare is \$2.50.

Date of the cruise series is Sunday, August 16.

Boats will leave Pierpoint Landing, Long Beach, at 2 and 4 p.m. To reach Pierpoint Landing, take the freeway to the port and turn right to Pier A.

Children under 12 are free as guests of the NRC.

Cruise reservations are now being taken at P-A.

Sights to see include luxury liners, great freighters, tuna clipper, navy ships and the world's largest floating crane.

Sightseeing boats are the Shearwater, 65 feet, and the Star, also 65 feet. Food and refreshment aboard.

CAMPERS OFF TO LAKE CASITAS JULY 25 AND 26

The Norair camping fraternity will make a trip to Lake Casitas come the weekend of July 25 and 26, it has been announced by Max Douglas, NRC commissioner.

Cost, says Max, will be \$1 a day for each car plus a charge of 25¢ a day for each person.

There will be fishing and boating and horseback riding.

The Club has reserved a shaded area there for the Northrop contingent. Potluck dinner will be held Saturday evening at 6:30 p.m.

Take Ventura Freeway and then Highway 33 toward Ojai. Watch for the Lake Casitas sign. Do not, repeat, do not turn off at Lake Casitas dam.

The camp is at the "Z" campground.

The United States will be elected; one United States senator, congressmen, and members of the state assembly.

Aristotle once said, "If liberty and equality, as is thought by some, are chiefly to be found in democracy, they will be best attained when all persons alike share in the government to the utmost."

Persons desiring to register are requested to call extension 2486 to obtain hours of registration.

Citizenship

(Continued from Page 1)

At Gate 3 in the Plant One area.

In the Mariposa facility lobby.

Gate 16 at the east end of Plant Three on Crenshaw.

At the main gate house at Palmdale.

At the Personnel office at Edwards Air Force Base.

Criteria for determining whether or not vote registration should be renewed:

If you did not vote in 1962 you must re-register.

If you have newly moved into the state, county, or precinct, you must renew. It is possible that a move across the street will put the voter into a new precinct and this should be checked.

If you have changed your name by marriage or other legal procedures, you must renew.

If you have reached 21 years of age prior to election, you must register for the first time.

All registrations for the November election close on September 10.

In the November balloting, the President and Vice-president of

NORTHROP NORAIR NEWS

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Wednesday, July 29, 1964

HAWTHORNE

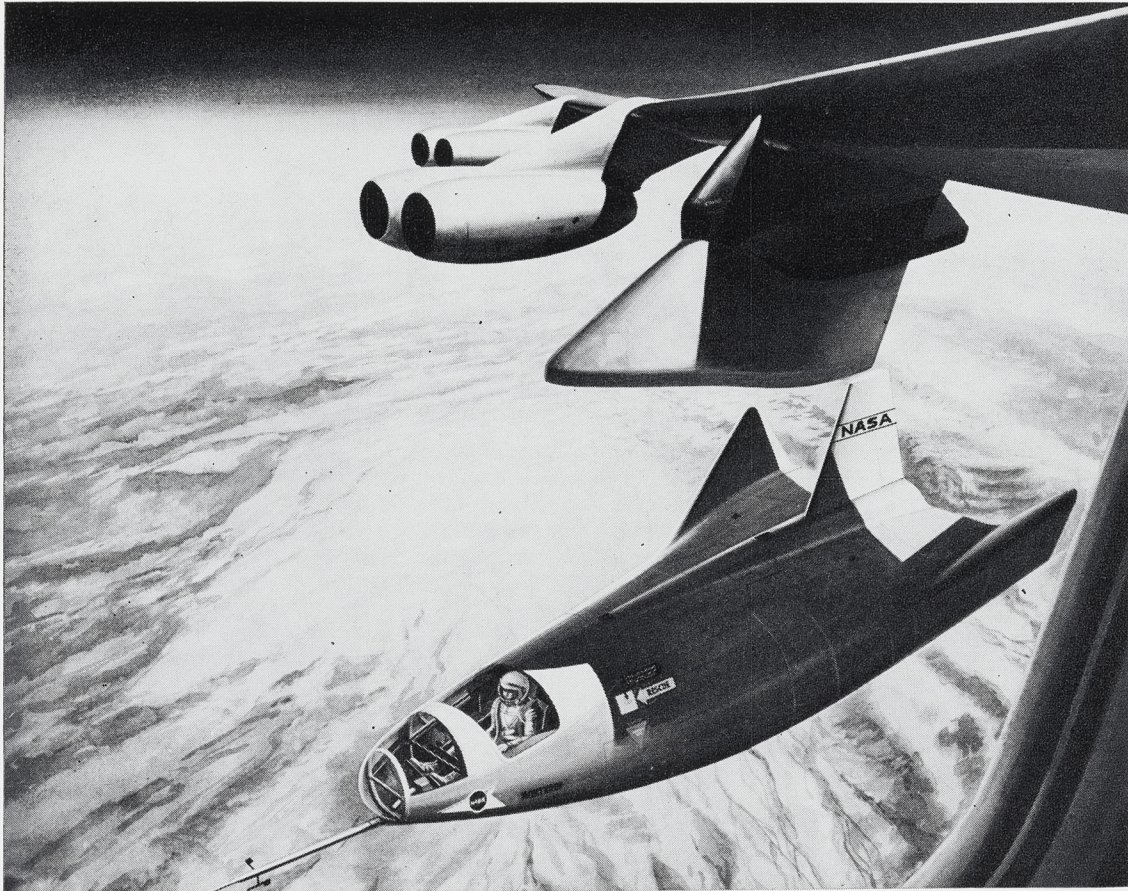
EL SEGUNDO

PALMDALE

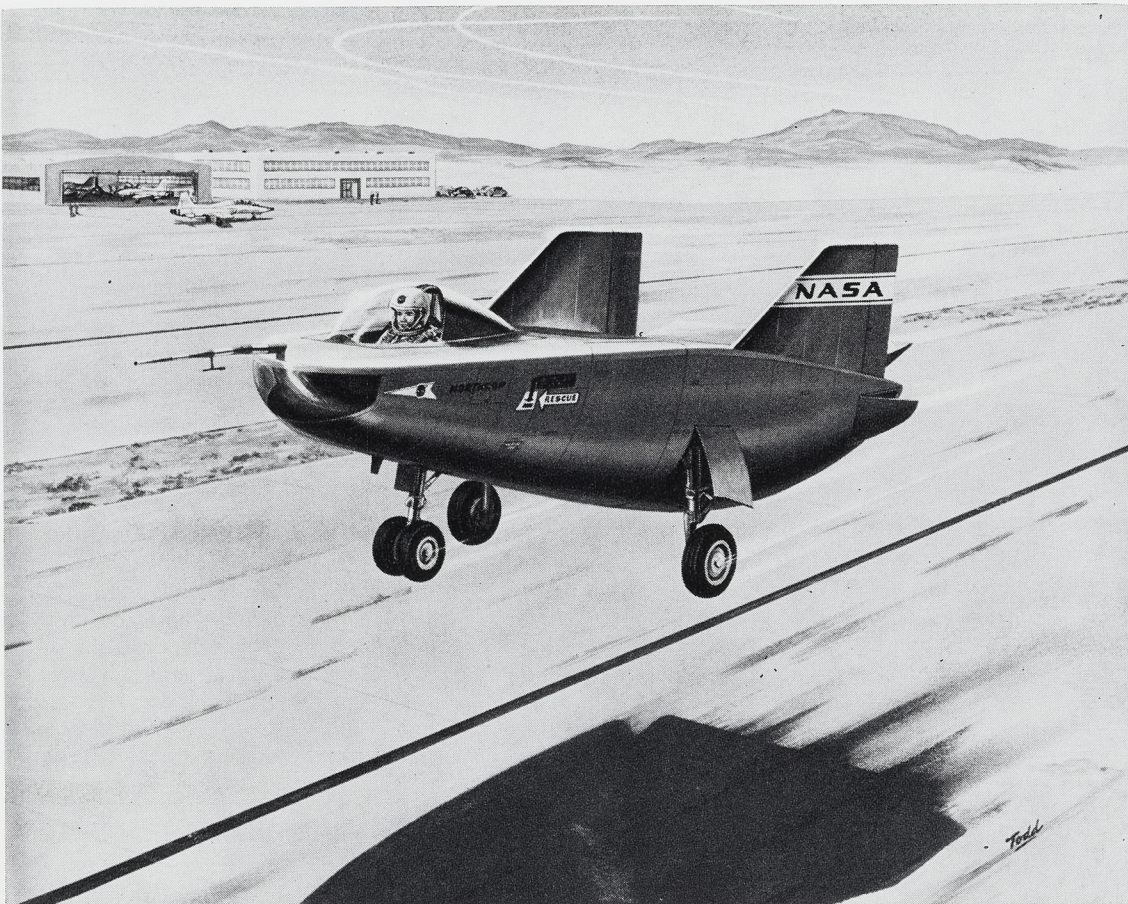
EDWARDS AFB

SAN ANTONIO

Northrop Builds NASA Gliders



HL-10 DROP—Artist's concept shows National Aeronautics and Space Administration's HL-10 lifting body vehicle being dropped from B-52 mother ship. The HL-10, a NASA Langley configuration, is being designed and fabricated by Norair Division, Northrop Corporation. Note the adapter that allows the HL-10 to be carried under an X-15 pylon. Norair Division won contract for the HL-10 and the M-2 (see below), in competition with five other companies who submitted proposals to NASA. The two gliders will be used for studying problems of piloting spacecraft during landing.



M-2 LANDS—This rendering shows National Aeronautics and Space Administration's M-2 lifting body vehicle, also designed and fabricated by Northrop Norair, landing at NASA Flight Research Center, Edwards, California. The M-2, a NASA Ames configuration, will be dropped from a B-52 and glide to a landing. The program is a cooperative effort of the Ames, Langley, and Flight Research Centers for NASA's Office of Advanced Research and Technology. The three centers are responsible for research and flight. Norair is responsible for the structural design of the shell and control systems.

Million \$\$\$\$ Plus Savings Via V-A

VALUE WORKSHOP CUTS COSTS

Norair's value program reached another milestone last week with the completion of the first of a new series of workshop seminars to teach the techniques of Value Analysis. Six teams racked up potential savings of over \$1 million in analyzing hardware items from various Norair programs. Half of the 30 hours of class time was devoted to lectures; with the remainder being spent at work on actual hardware.

Value Analysis is a cost reduction method which attacks the cost problem by analyzing the function of a part rather than the part itself.

Savings from Value Analysis reduce the cost of Norair products to the government and with incentive contracts should result in better earnings for Northrop. The savings are also reported to the Department of Defense through the Cost and Management Improvement program.

Value Analysis is a part of Technical Operations, Jim Matthews, manager. Paul Von Essen is supervisor of the activity.

Keynote speaker for the session was Milt Kuska, deputy assistant general manager-Technical. The closing address was delivered by F. W. "Bob" Lloyd, (Continued on Page 4)

Horner to Address Next M-C Meeting, August 14

Dick Horner, Corporate senior vice-president and Norair general manager, will speak before the next dinner meeting of the Management Club on August 14, it has been announced by Leo Sacks, president.

Mr. Horner will give a Norair state-of-affairs report, the title of his talk being "Where We Have Been, Where We Are, and Where We Are Going."

Management Club members should note that the meeting has been moved to August 14 from the regularly scheduled midsummer date, August 7, to make it possible for Mr. Horner to appear, his business commitments having precluded the earlier time.

Mr. Horner was originally set to address the Club for the first time since becoming general manager of the Division at the last meeting held June 5. However, a last minute change in schedule made cancellation unavoidable. Welko Gasich, vice-president and assistant general manager-Technical, substituted for Mr. Horner with a discussion on technology, new business and tomorrow's contracts.

The meeting will be held at the Pen and Quill, 3501 North Sepulveda, Manhattan Beach.

The Club social hour will be from 5 to 6 p.m. Dinner from 6 to 7:30 with Mr. Horner due (Continued on Page 3)



DESIGN DISCUSSION—Norair Technical's Warren Klauer, engineering chief, M-2 and HL-10 programs, at left, discusses vehicle design features with John McTigue, M-2, HL-10 project manager for NASA Flight Research Center. Contract award details for the two low-speed research gliders were published in the Wednesday, May 6 edition of the Northrop Norair News.

A Tribute to Don Papish

A Letter from Rod Close, handwritten . . .

We first knew Don during the years he flew for the Snark program in Florida.

All of us became really acquainted after assignment to the F-89 program at Palmdale. We were closely associated in hundreds of hours of flight time there.

We flew together again at El Paso for a couple of years in support of Ventura's RP-76 program. Then we returned to California to fly the T-38 and the F-5s.

We always had the greatest respect for Don's professional pilot attitude. There were many laughs on the ground discussing his favorite subject, airplanes, but he was always serious, cool, calm, and collected in the air.

In our close association with Don we felt that he was as dedicated to flying as any man we had ever known. We miss a very close friend and pay tribute to him for he was an outstanding pilot.

ROD CLOSE

Don Papish, Norair test pilot, and Major Joaquin Perez de Guzman, commandante, 61st Fighter Squadron, Spanish Air Force, lost their lives in an F-5B fighter at Torrejon Air Base, Madrid, during performance of an aerial demonstration.

Don first came to Norair in 1956 as an engineering test pilot. He was born at Ensley, Alabama. His hometown was Jamesport, Long Island.

His flying career officially began in February 1952 when he graduated from the USAF Flying School. One month later, March, he checked out in jet aircraft. He completed the Air Force All-Weather Fighter School in June. Then came 11 months with the Air Defense Command—Presque Isle with F-89 Scorpions and F-94s. Next, two years in Alaskan Air Command also in F-89s and F-94s. He was then assigned to the Northrop AFPR office performing Air Force acceptance test flights in the F-89 at Ontario. Following this and just before coming to Northrop he was copilot on DC-6Bs for Pan American on the European run.

He leaves his wife, Carol and two children, Debbie Lynn and Mark Donald.

He was 34 years old.



DON PAPISH—Don, at right, following Eindhoven demonstration flight with Netherlands' 1st Lieutenant Hobbel-Ary.

Calling All Tigers—Come To Ambassador, August 13-15

The 14th Air Force Association consisting of World War II veterans who fought under the renowned General Claire Lee Chennault in China as the Flying Tigers will hold their 17th annual convention at the Hotel Ambassador during August 13, 14, and 15. This is the first convention to be held in Los Angeles.

The 14th Air Force will long be remembered as the smallest U.S. fighting air force doing the biggest job in the late war. Flying mostly B-25 Mitchells and P-40 fighters, these daring men performed legendary feats against the numerically superior Japanese despite the handicap of too little at the end of the longest supply line in combat history. Their efficient air coverage for the Chinese ground forces kept a large portion of the Japanese war machine at bay until the U.S. was able to recuperate from the Pearl Harbor blow. After the Japanese surrender, General

Chennault retired and Lt. General Charles B. Stone, III, became commander of the 14th Air Force.

The organization is a charitable, non-profit, and non-political association of ex-China Hands who engender democratic ideals and good human relations. The Lt. General Claire Lee Chennault Memorial Scholarship Fund is sponsored for the benefit of children whose fathers were killed in China. To date 10 sons and daughters received their college education paid by the Fund. Lt. General Stone, retired, is at present the honorary president of the organization and one of its most ardent supporters.

All those desiring further information regarding the convention please contact General Stone at 10717 Lindbrook Drive, Los Angeles 24; Lloyd D. Wiler at 3343 Wonderview Drive, Hollywood 28, or Milt Bershad, 670-1515, ext. 3750.

NORAIR CAFETERIA TO PRESENT "WORLD GIFT" DEMONSTRATION

Norair cafeteria VIP program will present a World Gift demonstration by Mrs. Lona Shay for the week of August 3 through 7, it has been announced by Freddie Wolfe, general supervisor, Food Service.

Mrs. Shay will feature treasures from all around the globe and the cafeteria will issue merit points from sales which in turn will apply to a selection of hostess gifts as prizes in a drawing. Winner's names will be posted and prizes may be picked up at the cafeteria office.

The World Gifts may be ordered and paid for during the week. Deliveries will be made Friday, August 14.

Gourmet breakfast and the \$1 dinner will make headlines for the week.

On August 11 through 12, there will be a snack food dem-

onstration by the Frito-Lay company, manufacturers of Fritos and Chitos.

Also as a special attraction to be presented August 10, 13, and 14 will be a 28-minute movie entitled "Flying Saucers." It will not, however, be the kind people saw so frequently a few years

back. This movie will refer to restaurant china breakage.

For the week beginning August 17, there will be a food demonstration staged by Fern Laboratories, makers of soups and gravies.

August 24, Martin Edwards music.

Paid Academic Time Off Granted Two Norair Men

Education and Training has announced that summer paid academic time off awards for graduate study have been granted to two members of Norair Division.

Award recipients are Frank J. Campisano, Structural Analysis—66 hours for study at USC and Harold J. Gutterman, Technical Planning—72 hours at UCLA.

Mr. Campisano received a B.S. degree in aerospace engineering from Iowa State University in 1961. He is now a candidate for an M.S. degree in mechanical engineering at USC.

At Norair, Mr. Campisano has been an associate engineer, X-21 Structural Analysis branch and was recently promoted to engineer, T-38/F-5 Structural Analysis branch.

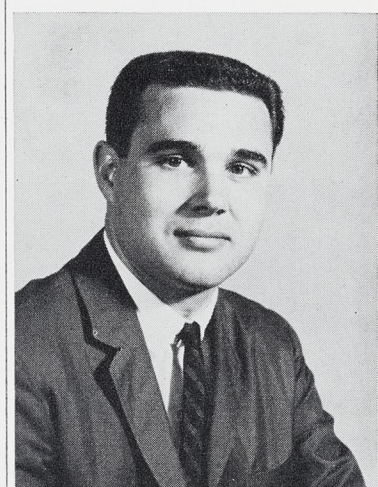
Mr. Gutterman received his B.S. degree in business administration from the University of California at Los Angeles in 1963. He is also a current candidate for a master's degree and attends UCLA majoring in business administration.

Mr. Gutterman is an engineering planner in Norair's Technical Program Administration branch and specializes in work control

and status reporting on incoming business.

Both men expect to achieve their goals in June 1965.

Paid academic time off awards under the Graduate Study program are available to qualified advanced degree candidates who are required to attend classes



HAROLD GUTTERMAN

available only during normal working hours.

During the past two semesters, Norair has awarded 1000 hours of paid time off:

To Jim Campbell, 3730; Joe Der, 3713; Jerry Gliksman, 3431; Larry Jeans, 3431; Bill Jones, 3920; Jim Revell, 3733; Bob Shirley, 3435; Ivan Sowor-

GOES ON BAND TOUR, VISITS NATIVE HEATH

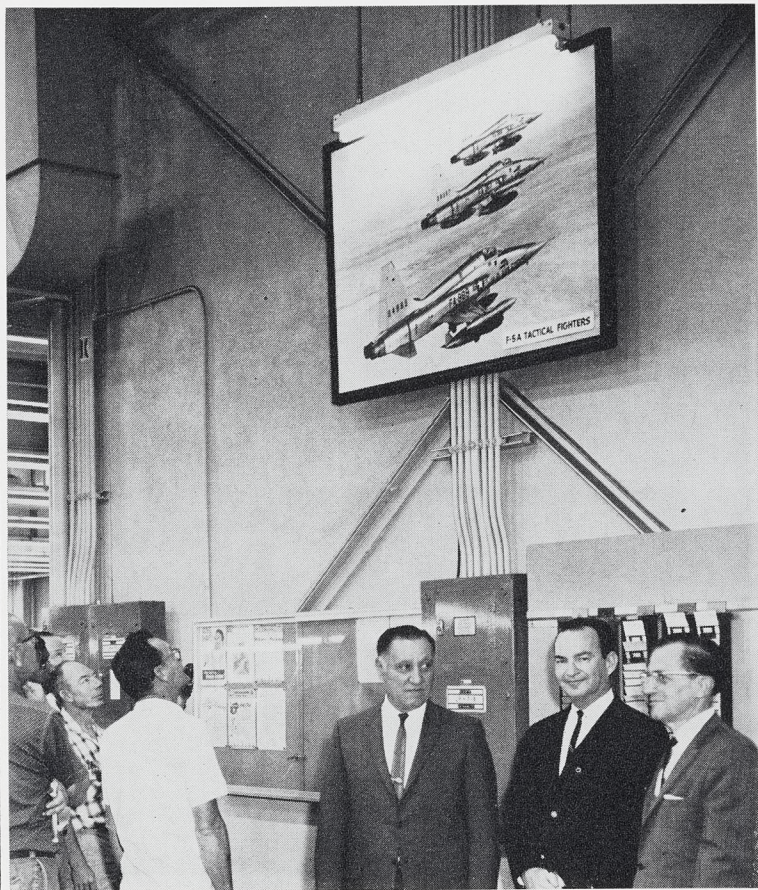
Charles Morris, Norair Production Ordering, was recently afforded the opportunity to tour Scotland, his native heath, as a member of the Hollywood Tabernacle band of the Salvation Army.

The band visited Great Britain, The Netherlands, Germany, and Denmark performing concerts in 11 cities including London where they participated in the Bandmaster's Festival at Royal Albert Hall.

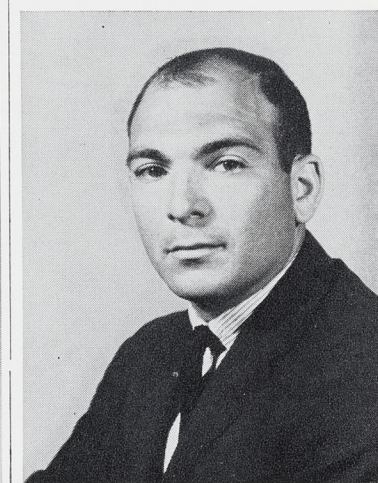
Mr. Morris has been with Norair for two years.

He plays the trombone.

Product Photo Murals



GOOD SUGGESTION—J. C. Lawrence, Product Support department, as part of that organization's recordbreaking idea drive, suggested that large photo murals of Company products be hung at strategic locations throughout the plant to give employees look-see of their handiwork in action. Congratulating Mr. Lawrence are John Breneman, director, night Operations, left, and Byron Bonnett, assistant to the manager, Administration. Fluorescent lighting provides standout quality for the 3½ by 5-foot photos.



FRANK CAMPISANO

otnow, 3681; Tom Sweeney, 3431; and Alan Wang, 3720.

Personnel who are interested in participating in this program during the fall semester 1964 are to contact Dick Geer, coordinator, Career Development programs, Education and Training, extension 2437.

NORTHROP NORAIR NEWS

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A NORTHROP CORPORATION PUBLICATION
NORAIR DIVISION

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CHARLES BRADFORD, Editor

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Mr. Campbell Speaks Out

There are many ways to say those two magic words which Jim Farley has stated are the two most neglected words in the English language. They are simply, "Thank you."

Bob Campbell of Technical and Scientific Personnel branch has said these words so well in a very nice letter which I received from him that I beg leave to share it with all of you. I have known Bob for some time and have a high admiration for this conscientious associate. His well-written letter is printed in its entirety.

"Dear John:

"As you know, I work for Northrop and you, and my job is to hire the scientists, technicians, senior engineers, clerks, engineers, secretaries, specialists, stenographers, or anyone else Norair

have had to put out \$1400 of our money.

"John, in closing I want to say that this time I am not selling Northrop. Even though I didn't need to be sold, Northrop Norair has once again sold me.

"I'm glad I am a member of such a wonderful family—the Northrop family."

Robert J. Campbell

It is always good to learn that our Group Insurance and other benefits are providing real assistance to our people. I might add that Bob did not have to break his leg to learn of the Northrop attitude in human relations for he has traditionally been a staunch supporter and fine example of the philosophy expressed by our President Tom Jones when he said, "At Northrop, our people are our most im-

By John B. Clark

Norair Director, Industrial Relations

Technical needs. It is also a part of my job to tell the prospective employee what a great place Northrop Norair is to work and that, while it may sound trite in this day and age, we say in our advertising as well as in actual practice, 'at Northrop people are important'. And we mean it. As a result, at Northrop the morale is not like it is at most aerospace firms; it is more like it is at a university with a winning football team.



Among the other things I talk about when I am talking Norair are the many personnel benefits we enjoy. One of these is our fine accident and health and major medical program. John, I picked out these two facets, 'at Northrop people are important' and our medical program to write you about for the following reasons:

"I have just returned to work after suffering the ignominy of breaking (mutilating is a better word) my left leg while riding my 11-year-old niece's bicycle. While in the hospital, and recuperating at home, I have received to date, 108 cards and notes—some signed by as many as 10 or more Northrop employees. I heard from production workers, scientists, clerks, engineers, management and labor—no titles, just honest-to-God down-to-earth Northrop people who heard about my misfortune and wanted to let me know they were sorry it happened and that they wanted to have me back to work.

"I was a part of the family and I wasn't in my usual place; and that wasn't right 'so hurry up, Bob, and get back where you belong.'

"Now let me talk about the Northrop insurance program. This little old broken leg has cost over \$1300, to date. At the moment it will cost me less than \$100, out of pocket. The balance was paid by Northrop's selected insurance carrier, Prudential. Have any of our fellow employees stopped to think, as Alice and I did since this accident, what would have happened to our bank account or our future if we would

portant asset." It is well that we all remember this in our daily efforts on the job. Tom has said it and we will make it valid and meaningful like Bob Campbell, who says, "Thank you," so nicely.

Mr. Farley's article on this subject appeared in the January 1964 issue of Guideposts. If you missed this issue, drop by my office at your convenience and read this article. It's a gem. Mr. Farley, as you know, is now chairman of the board of directors of the Coca-Cola Export Company and has been called the "Maker of Presidents." Another observer stated that in his opinion Jim Farley has more friends, both here and throughout the world, than any other living American.

In conclusion, may I say, "Thank you," Bob Campbell, for your well expressed "thank you." I join your many friends in saying that it's good to have you back among us. Now, take good care of that leg.

M-C Meet

(Continued from Page 1)

to speak at 8 p.m.

Also of interest to members, the Club will present a social forum at which Russell Hawkes from American Aviation Magazine will relate his firsthand experiences with the war in South Vietnam, tonight, Wednesday, July 29.

The subject of Mr. Hawkes address which will be supplemented by 35-mm slides is "The Aviation Side of the War."

The event will take place at the NRC Clubhouse, 12917 Cerise, Hawthorne. Social hour begins at 4:15 p.m. The forum is scheduled for 5:30 and continues until 7 p.m.

There will be a charge of \$1 a person with hors d'oeuvres and other refreshments being served.

GET TICKETS FOR DODGERS, REDS AT P-A

A limited number of NRC box seats remain for the Los Angeles Dodgers-Cincinnati Reds baseball game, Friday evening, August 21.

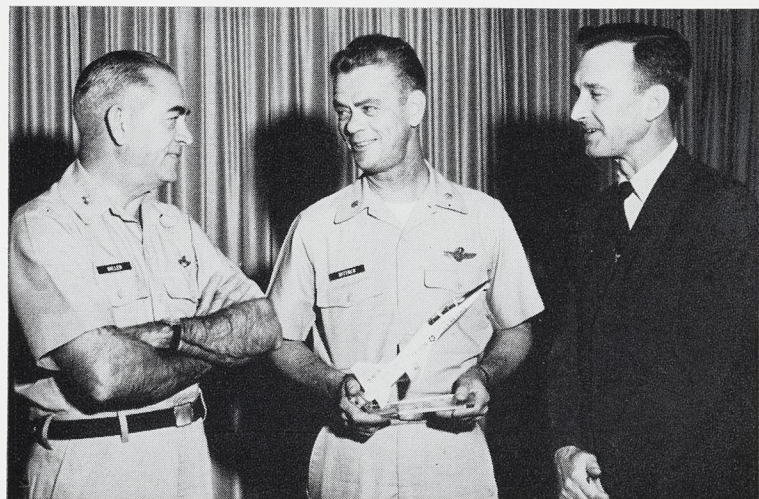
Tickets are on sale at Personnel Activities, extension 2486. Price is \$3.50.

A-F Middletown Management Teams



FOR THE T-38A PROGRAM—From left, Air Force Middletown management team members are Joyce McCourt, Jean Wilkerson, Charles Ross, Ramona Krupa, Bruce Brown, Wallace Gannon, Roger Ruggeri, chief, Trainer branch; Earl Lilly, Roger Wallick, Anthony Mancuso, Charles Condran, chief, T-38/F-5 section; Dorothy Kinsey, Melvin Klinger, and Major Charles Bittner, System Support manager.

THE TRAINER—Norair Division General Manager Dick Horner, right, visits Middletown for product and service discussions with Major General Frederic Miller, commander, Middletown Air Materiel Area, at left, and with Major Bittner. Major Bittner's T-38 team is photo'd above.



THE FIGHTER—General Miller, Major Alexander whose F-5 team is shown below, and Mr. Horner, check MAP global support plans, and production progress on the fighter. Model shows typical stores configuration.



FOR THE F-5A/B PROGRAM—Fighter management team, from left, Major Bob Alexander, System Support manager; Gene Hand, Albert Dintenfuss, Dan Lynch, Mr. Ruggeri, Ralph Bucciarelli, Mr. Lilly, Ramon Manari, Mr. Condran, and Joseph Rine. Others assigned to the program but not in the photo are Lonnie Shively, Joe Roman, Charles Hennigen and Howard Witmer.



VALUE ANALYSIS KNOW-HOW—Twenty-eight key men from Norair Division took part in recent Value Analysis seminar. Time was divided equally between indoctrination lectures and working on actual parts. Estimated potential savings—over \$1 million. From left, front row, Ken Davidson, Gus Morfis, W. F. Bell, L. A. Flanagan, D. N. Woodis, J. W. King, C. W. Endriss, R. J. Moore. Second row, C. M. Corderre, George Schwalm, E. J. Regalado, E. F. Mann, R. E. Yorke, E. A. Suppelsa, Ellis Cook, Joe Smith, L. D. Thompson, Jerry Thomas, R. H. Johnston, L. L. Unmack, and D. P. Watts. Third row, Louis Pisacane, Harry Blocher, Fred Anderson, C. E. Hawk, M. B. Andersen, N. J. Linardos, J. M. Brown, and G. L. Ralston.



VALUE—Norair Assistant General Manager-Operations F. W. "Bob" Lloyd presents certificate of Value Analysis training completion to E. F. Mann as part of "graduation" ceremonies following workshop sessions. At left by blackboard is Ken Davidson, management staff, Value Analysis, who conducted the 30-hour series.

Good Citizenship



ATTENTION PLEASE—This young lady, Ellie Galeoto, secretary, Northrop Space Laboratories, and duly-constituted vote registrar, will help see to it that you are qualified to vote in the November presidential election. Ellie will accept registrations during the week of August 10 to 14 through the noon hour. Other vote registrars, as part of the Company's Good Citizenship program, will on that same week, be stationed at strategic locations throughout the entire Hawthorne facility.

Train Trip To Del Mar Is NRC Plan

All aboard!

Del Mar Daze coming up.

The NRC Travel Club through special arrangements with the Santa Fe Railroad has reserved two lounge cars for a Del Mar racetrack trip Saturday, August 15, it has been announced.

The trip will be limited to 96 persons with reservations being issued on a first-come, first-served basis.

Round trip cost is \$8.50 which includes general admission plus a reserved grandstand seat at the track. Refreshments at nominal prices will be served aboard the lounge cars en route.

Time of departure from Los Angeles Union Station is 9:30 a.m. Pacific Standard time. (10:30 Daylight Saving time). The party will arrive at the track two and a half hours later.

Make reservations with Blanche Cook, Personnel Activities, extension 2486.

Voter Registration August 10-14

Booth locations and hours:

East end of Plant I, near Credit Union and Personnel Activities; Monday through Friday; 11 a.m. to 1 p.m. and 3 to 5 p.m.

Breezeway between cafeteria and Engineering Center; Monday through Friday; 11 a.m. to 1 p.m. and 3 to 5 p.m.

Gate 7, east end of Engineering Center; Monday through Friday; 11 a.m. to 1 p.m. and 3 to 5 p.m.

East end of new Assembly Building; Monday through Friday; 11 a.m. to 1 p.m. and 3:30 to 5 p.m.

Gate 3; Monday through Friday; 11 a.m. to 1 p.m. and 3 to 5 p.m.

Mariposa Facility, Personnel office off lobby; Monday through Wednesday; 11 a.m. to 1 p.m.

Gate 16, entrance to Plant III, front of cafeteria; Monday through Friday; 11 a.m. to 1

Value Analysis Teams in Seminar Workshop

(Continued from Page 1)

vice-president and assistant general manager - Operations, who also awarded certificates to the graduates.

Coordination details and arrangements for the series were handled by Industrial Relations' Education and Training branch, Larry Walton, administrator.

The seminar, which added 28 newly trained men to Norair's already established value force was conducted by Ken Davidson, management staff, Value Analysis. Mr. Davidson is chairman of the Los Angeles chapter of the Society of American Value Engineers.

PROFITS

A unique management factor that makes Division Value Analysis "profits" more meaningful to the company and to the government-customer is the fact that the program is financially self-sustaining and is a bookkeeping item with gains and losses accounted for in budget performance.

Rate of return potential, Mr. Von Essen calculates, will be on the order of five-to-one over V-A program costs.

In practice, when Division Value Analysis teams determine that a design or method would benefit by a change, and the Program office approves, the engineering hours required to put the change into effect are supplied by the Value Analysis branch.

SECOND LOOK

Value analysis can usually help the cost part of the problem and sometimes aid in solving the others. If after the design is released for production or procurement, unforeseen problems develop, Value Analysis can be used as a "second look" to reduce costs anywhere in the development and production cycle.

Value specialists operate under the creed: "There is always a better way to do any job; find it."

Mr. Davidson, the "father" of Value Analysis at Northrop, asserts that value analysis of parts never fails to yield some added "profits."

Even though an assembly or a function has been evaluated several times, with added value realized each time, the next study will again turn up a dividend. There seems to be no limit.

How is a value study conducted? What are the steps?

Mr. Davidson explains:

"First you must have a knowledgeable team. The biggest hold-back to Value Analysis progress is built-in inhibitions. The provincial view. This is the road-block that must be overcome. Brainstorming techniques are usually successful. There is no place for debate, per se, in the value study. Spontaneity is most important."

"The ideal team would consist of representatives from Technical, Manufacturing Materiel, and Pricing. You need design talents, factory, tooling, finance, purchasing, and perhaps quality control and flight, depending on the function of the part under study."

DEFINITION

"You sit down with the part and look at it."

"First step is to define the job it performs—and we have a rule that the definition must be in two words. A cigarette lighter would be 'makes fire.'"

"It is surprising how many parts fail this simple definition test and are eliminated entirely from the product when their function is combined with some other function."

"Next, suggest a more economical material. One V-A team member in racking his brain for a cheaper material suggested 'mud.'"

"This led to ceramics, and ceramics led to a savings."

"Can it be made smaller? And lighter? Can it do two jobs, three jobs? Tooling problems? Quality? Reliability? Producibility? Commitments to the old part. Design time. Number required. Price. And so on."

READY WITH HOURS

"When all the facts are known and if the study stands up in the cold light of cost evaluation," Mr. Davidson continued, "the team then arranges for the withdrawal of the necessary hours from Value Analysis 'revolving credit' and pays a call on the designers. Ship effectivity is selected and the V-A team turns to another part."

Present plans are to hold at least six Value Analysis workshop seminars a year. Last week's meeting was the first of this new series. New personnel will be drawn in each time to gain the widest possible training effects of V-A know-how throughout the Division.

NRC Travel Club to Sample Hawaiian Isles Atmosphere

Hula dancers flown in from Hawaii will provide a foretaste of what is in store for the NRC Travel Club when they make their trip to Hawaii this coming yearend holiday.

p.m.; Monday, Wednesday and Thursday, 3 to 5 p.m.

NSL, Gordon Beller's office; Monday through Friday, 11:30 a.m. to 1 p.m.

Palmdale, main gate house; Monday through Thursday; 11:30 a.m. to 12:15 p.m. and 2:15 to 2:30 p.m.

Edwards Air Force Base, Personnel office; days and hours to be posted.

Dave Carney, commissioner, announces that Kim Travel will bring in the Island dancers to perform at the Travel Club's next meeting to be held Friday, August 7 at 8 p.m. at the Alondra Club. The Alondra Club is at 16411 South Prairie in Lawndale.

Discussions and briefings concerning the 11-day jet trip plus a variety of door prizes will help round out the evening festivities. "Bring checkbook," says Dave, "for reservations and deposits are now being accepted."

Cost of the trip will be \$358. Dates are December 24 through January 3.

AID, NOR-AID SIGNUP TIME ALL SET FOR AUGUST 3-14

Signup and renewal dates for AID and Nor-AID have been set for August 3 through August 14, it has been announced by Mal Mountain, AID chapter chairman and Nor-AID administrator.

This is the time when personnel throughout the Company will be asked to check on their AID and Nor-AID contributions for the coming year.

Organization clerks and Personnel Activities have complete information on the AID plan and are ready to answer questions and assist contributors in filling out the necessary forms.

Under the AID, Nor-AID pay-

roll deduction charity plan, no campaigns, or special charity drives take place in the Division. The sums paid into the plan are distributed to charities under the AID United Givers banner and to Nor-AID and to charities specifically named by the giver.

The plan can be tailored to fit individual charity policies.

Money is handled in the following ways, depending on the giver's wishes:

(1) If no specific charities are named, the money will be divided equitably among the 12 AID United Givers and Nor-AID charities according to budget needs.

(2) The giver has the option of excluding any charities he wishes.

(3) The giver may designate his entire contribution to any single charity or split it in percentages to certain ones.

(4) The giver may designate a charity of his own choosing, providing the one designated is approved and accepted by the U.S. Treasury Department.

(5) Givers may have any amount they can afford deducted from their weekly checks. A suggested sum is 12 minutes of pay each week.

Norair's own charity, Nor-AID has been in operation for nine years caring for needy Division families. Mr. Mountain states that on more than 2000 occasions Northrop people have been helped in time of stress. Nor-AID charity dollars granted amount to over \$415,530.

Nor-AID committees are located at Norair facilities in Hawthorne, Edwards, Palmdale, at Northrop Space Laboratories, and at Nortronics ES&E and SS.

Campaign chairmen are:

Corporate, Arleen Johnson
Norair-Hawthorne, Marie Tully
Norair-Edwards, Kelly Burke
Norair-Mariposa, Polly Middleton

Norair-Palmdale, Tom Post
Nortronics ES&E, Harry Clark
Nortronics SS, Harry Belcher
NSL-Hawthorne, Kate Russell

Charity giving the Norair AID way assures distribution by the Northrop formula which allocates monies to the town and community in which the giver resides.

Mr. Mountain also pointed out that specific charity designations are good for one year only and expire on an annual basis. This means that unless you contact your clerk for charity designations your charity dollars henceforth will be divided equitably among AID United Givers and Nor-AID.

SUGGESTED FAIR SHARE BASED ON TWELVE MINUTES OF PAY A WEEK

If your rate per hour is:	Your weekly (12-minute) contribution would be:
\$1.61-1.85	\$.35
1.86-2.10	.40
2.11-2.35	.45
2.36-2.60	.50
2.61-2.85	.55
2.86-3.00	.60
3.00-3.25	.65
3.25-3.50	.70
3.50-3.75	.75

If your weekly rate is:	Your weekly (12-minute) contribution would be:
\$160.00	\$.80
170.00	.85
180.00	.90
190.00	.95
200.00	1.00
Above \$200.00 weekly, compute 1/2 of 1% of weekly salary.	

AID Helps Them All



SIGNUP TIME—August 3 to 14.



FAIR SHARE—Twelve minutes of pay a week.



ROCKETRY AND DIVE BOMBING—Qualified as an F-5A fighter rocketry and dive bombing pilot is Brigadier General Irving L. Branch, left, Air Force Flight Test Center commander. He is here checking firing mechanism of 25-pound practice bomb on Northrop Corporation's new F-5A supersonic jet being tested at Edwards shortly before taking it aloft for target practice on the bombing range. Briefing him on armament mechanism are Majors James M. Wood, center, F-5A test director, and Henry C. Gordon, project pilot. General Branch came up with a qualifying score of five passes at a circular ground target, firing four 2.75-inch rockets, dropping the rocket pods in a low-altitude simulated napalm attack and dropping lightweight practice bombs.—Air Force Photo.

NRC Trap and Skeet Club Set for Baja

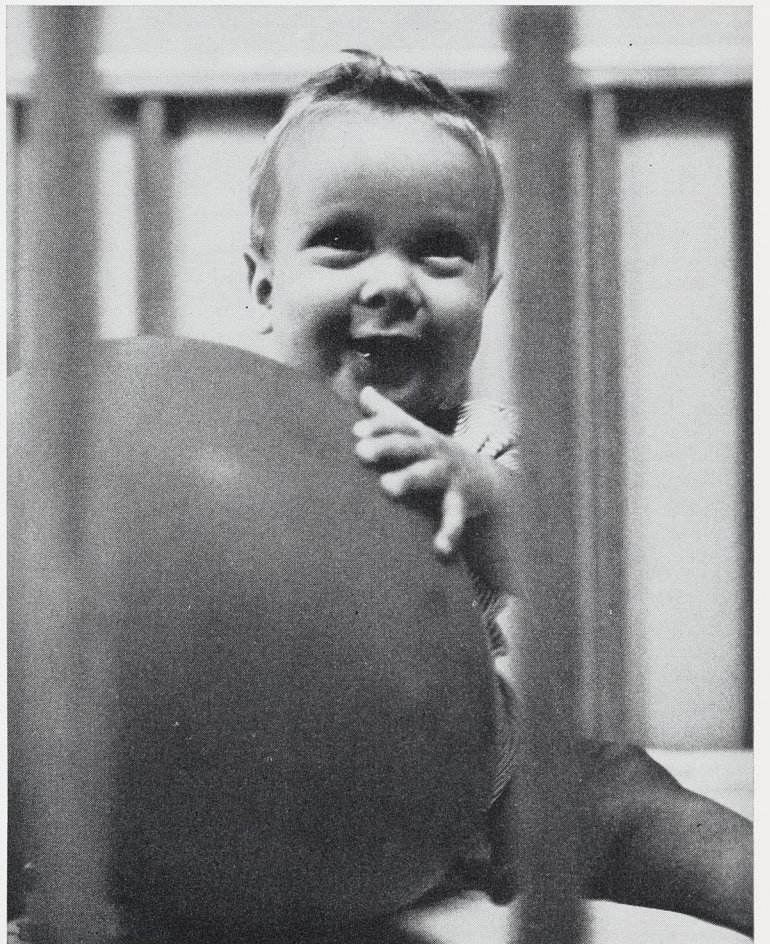
The NRC Skeet and Trap Club is making plans to take part in a "Valencian Flyer" shoot to be held in Tijuana this weekend August 1 and 2.

The event will feature a 20-bird race for two days of shooting. The reward is substantial, \$2000 in gold pieces and trophies to the men's, women's, and junior divisions, and there will be a special award for the top shooter among the Northrop entrants.

The "Valencian Flyer" shoot will be held at the Club Cinegetico de Tijuana which is eight miles southwest of the city on the Ensenada Highway.

A cocktail party and dinner will be held Friday night at the Club B.I.C. in Tijuana at 8 p.m. This is included in the entrance fee of \$45 which should be at Personnel Activities before noon on Thursday, July 30.

Also call Personnel Activities, extension 2486, for additional information on motel accommodations, directions, shooting rules, and other particulars.



\$\$\$\$—Northrop people have contributed over \$2 million.



RIDES WANTED

7 a.m. — 3:45 p.m.

PIER AVE. & VALLEY DR., Hermosa Beach. Alma Hyde, ext. 2681, 379-3657.
 CENTER & MARIPOSA, El Segundo. James J. Blackstock, ext. 1592, EA 2-0461.
 2
 MANHATTAN BEACH & PECK OR AVIATION & 2ND ST., Manhattan Beach. Carson B. Wisdom, FR 2-2873.
 2
 VENICE BLVD. & CENTINELA, Mar Vista. Richard Lynch, ext. 2004, 398-2478.
 2

7:30 a.m. — 4:15 p.m.

YORBA LINDA AREA, Yorba Linda. Dan Postil, ext. 543, 528-5392.
 3

RIDE OFFERED

7:30 a.m. — 4:15 p.m.

YORBA LINDA AREA, Yorba Linda. Dan Postil, ext. 543, 528-5392.
 13

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

STAMP COLLECTION, U.S. & foreign global supreme albums, \$350. OS 5-7729.
 A

VOLKSWAGEN, 1964, 5000 miles, radio & many access., \$1850. OS 6-6650.
 A

FIAT 500, 1959, not running, new tires, \$75. 676-4020.
 A

LAYOUT, for HO model railroad, 6'x8', w/track, 4 elec. switches & crossover, ena. & rolling stock. \$40. GE 1-4233.
 A
 STOVE, Gaffers & Sattler deluxe, 5-yr.-old chrome top, \$150 or best offer. FR 1-1980.
 A

WASHER-DRYER COMB., RCA, elec., \$100. FR 7-4770.
 A

ORGAN, reed, antique, \$200. 372-4907.
 A

WARDROBE, wooden-type, approx. 6' high, 28" wide, sliding door, \$15. Box 1201.
 A

PICKUP, 1958 Ford 1/2-ton, recently o/hauled, o/head camper, sleeps 4, many access., \$1495. EA 2-5068.
 A

CABIN CRUISER, 18', wood & glass, 30-hp Evinrude elec., trailer, extras. \$650. PL 4-5288.
 A

170A TRI-GEAR, 225 S.M.O.H., new paint, Hawthorne Airport, \$4500. 679-7584.
 A

AQUA LUNG & tank, \$60. DA 3-2264.
 A

PONTIAC, Catalina, 1963 2-dr, h/top, w/s/w, r/h Hydramatic, factory air, p/b, p/s, \$2800 or best offer. OS 9-1324.
 A

CAMPER, 6' long, Fiberglass, fits 1954 to 1959 Chevrolet 1/2-ton pickup, \$100. OS 5-4905.
 A

CONDOMINIUM Apt., 1087 ft., attached gar., pvt. patio, pool & rec. room, Gold Medallion, 5-mos.-old, \$22,500. DA 3-6403.
 A

CARBURETOR, Carter WCFB 4-bbl. for 1955 Pontiac or adaptable to most enas. around 287 cu. in., \$10. DA 9-4286.
 A

BOAT, 14' Champion Saber, 45-hp Merc., trailer \$450. FR 5-0237.
 A

VOLKSWAGEN, 1964, 24-mpa, \$1850. LO 7-1884.
 A

VW CAMPER, 1958, insulated & panelled, foam cushions, bed pads, \$850. 377-5936.
 A

VOLVO, 1958, 3-spd., 444 model, \$595 or best offer. 326-1856.
 A

CRIB & mattress, \$20. 676-9678.
 A

AMBASSADOR, 1962 4-dr. air cond., radio, full power, \$1645 or best offer. DA 9-4576.
 A

LAMBRETTA, 150 LDM. 45 mph, 250 mpa, \$150. TE 3-4809.
 A

VIEW LOT, Lake Elizabeth, 17 miles from Palmdale, elev. approx. 2500 ft., terms, \$2800. PL 4-9309.
 A

ACCORDION, Rubens, 120-bass, 6-mos.-old, orig. price, \$600, w/case & stand, \$450. UN 8-2084.
 A

WIG, med. brown, human hair, worn approx. 6 times, \$100. 391-4698.
 A

CAMPER 9' alum., not a cabover, fully insulated, access., \$375. 867-1476.
 A

FIAT, 1200 Spyder rdstr, 1958 w/new top, \$800. 394-6160.
 A

FOR SALE

SLEEP - TEACHING - personal betterment course. International, w/hi-fi record player & ear phone, w/25 records, \$295. 376-4787.
 A

DE SOTO Sportsman coupe, 1952, good trans., \$125. OS 5-2510.
 A

STUDEBAKER, 1950 sedan, stick shift, o/drive, \$75. VE 7-7451.
 A

CAMERA, Rolleicord, leather case, \$45. GL 7-2949.
 A

VOLKSWAGEN, black, radio, new sun-top, \$525. OR 1-4134.
 A

CORVAIR Monza, 1961, 4-spd., 2-dr., \$1000. 325-0827.
 A

HOUSE, small, 4-room, 50'x150' fenced lot, aar. disp., utility room, carport, \$13,750. 376-8545.
 A

FORD, 1957, Skyliner, h/top conv., auto, trans., r/h, p/s, p/b, 2 new w/s/w, 1-owner. \$699. OR 0-8453.
 A

TIRES, 5, near new, 8.50x14, 4-ply Good-year first line, b/w, \$22.50 ea. 377-1094.
 A

VACUUM CLEANER, Kenmore upright tank-type w/brushes, \$10. 371-9730.
 A

SLOOP, 13' Romeo, Larsen-built, Fiberglass hull, dacron sails, stainless & alum. rigging, trailer, \$575 or best offer. FR 5-1282.
 A

VOLKSWAGEN, 1961, radio, sunroof, \$1250. FR 2-5367.
 A

PLYMOUTH, 1957 V-8 Savoy, 2-dr, h/top, auto, trans., p/s, p/b, r/h, \$290. PO 3-5577.
 A

HOUSE, 3 blks. to Norair, 2-bdrm. lge. R-2 lot, fenced, patio, landscaped, fruit trees \$19,500. OS 9-6982.
 A

VW-GHIA 1958, \$830. OR 4-9599.
 A

TR-3, 1959 rdstr., r/h, new clutch, soft top, windows, & tonneau, \$1100 or best offer. FR 1-4704.
 A

LOT, Miraleste, in beautiful tree area, \$17,000. 326-4989.
 A

BUSINESS COURSE, Alexander Hamilton, 24 vol. & study booklets, \$25. FR 2-3827.
 A

CHEV. TRUCK, 1959 1/2-ton Apache 32, split rims, 7.50x15 tires, o/load springs, w/1961 Globe o/cab 10' camper, \$1895. 672-1687.
 A

BOAT, 16' inboard, high freeboard, newly painted, 100-hp Ford V-8 eng., large-wheel trailer, \$650. DA 9-4474.
 A

CHEVROLET, 6 Impala, 1959, r/h, p/s, 2-dr, h/top, w/w, \$850. FR 7-5075.
 A

DINING ROOM SET, solid walnut, pads, 6 chairs & buffet, \$50. DA 6-1358.
 A

RUGER .44 mag, set of carbine, pistol, holster, cart. belt, cases, 20 rounds ammo., \$165. 676-4251.
 A

BICYCLE, boy's 26", \$8. PL 6-7337.
 A

LAMPS, white alabaster, \$10 pr. 329-1565.
 A

LIMIT—ONE ITEM

CABIN CRUISER, 20' glassed, 75-hp Evinrude, many extras, all C.G. equip., tandem-wheel trailer, \$1875. FR 4-2188.
 A

OLDS, 1948, r/h, Hydramatic, dependable trans., \$75. 652-4908.
 A

LAUNDRY SINK, \$5. 295-9997.
 A

CORVAIR Monza, 1961, auto, r/h, new brakes & tires, \$1345. 344-1057.
 A

FALCON Futura, 1962, 30,000 mi., auto., r/h, orig. owner, \$1450 or best offer. DA 9-3593.
 A

SUNBEAM Alpine, 1963, 17,000 mi., wire wheels, tonneau cover, \$1800. 371-6209.
 A

CHEVROLET, 1957 Bel Air, 4-dr. sedan, r/h, auto, w/s/w, \$450. 645-0863.
 A

CHEVROLET, 1955 station wagon, r/h, \$350. DA 6-4050.
 A

PLATFORM ROCKER, red Naugahyde, adjust, \$20. 377-6648.
 A

FORD V-8, 1960 Fairlane 500, 4-dr., auto, trans., p/s, w/s/w, seat belts, \$795. DA 3-9720.
 A

APT., deluxe, 2-bdrm., 1 1/2 bath, all elec., pvt. balcony, terms, \$17,500. 324-7377.
 A

BOAT, 12' Merline, 25-hp Elgin, trailer, \$350. 679-8426.
 A

HI-FI console, Emud, imported, AM/FM/SW/record player, \$100. PL 6-4837.
 A

FORD Falcon sta. wagon, 1961, stick, 36,000 mi., r/h, \$850. FR 5-8164.
 A

HOUSE, 2-bdrm, cpt. & drapes, R-2 zoned, \$16,950. OS 6-0524.
 A

SCINTILLATOR, model 111B, cost \$495, \$100. EX 7-0667.
 A

RANGE, O'Keefe & Merritt, 35", full-size oven & broiler, \$50. 327-2279.
 A

AIR CONDITIONER, window-type, Fedders Deluxe, 2-ton. 220-volt, used 1 1/2 yrs. \$225. 671-8008.
 A

YAMAHA, 1963, 125-cc., 2200 mi., \$375. 320-1372.
 A

FIAT Topolino, 1953 conv., orig., 48,000 mi., \$375 or best offer, 714-689-7678 or Box 1202.
 A

WANTED TO BUY

TRICYCLE & pedal car. OR 2-2193.
 B

GUITAR, good quality flattop, Spanish, nylon strings. FR 4-5935.
 B

SILVERWARE, place setting & dessert spoons, Royal Windsor by Towle. OS 6-4743.
 B

BOB VAN ALLEN VOTED NRC PRESIDENT 1964-65 TERM

Bob Van Allen, chief, Norair Project Budgets, has been elected president of the Northrop Recreation Club, 1964-65 term.

Bob served as Club vice-president last year and prior to that was commissioner of the Hikers



BOB VAN ALLEN

and Packers Club.

Installation was held Saturday, July 18 at the Alondra Club.

Vice-president for the new

WANTED TO BUY

OLD COINS to fill book or set. DA 6-5558.
 B

MOTORCYCLE, light Japanese or Continental Europe, under \$250. 329-9581.
 B

FOR TRADE

RUNABOUT, 15' Esseness, w/40-hp elec. Elgin outboard, tilt-launching trailer, many extras, trade for vacation trailer. 329-0358.
 C

FOR RENT

APT., 2-bdrm., triplex, 1 or 2 preschool children, encl. yard, August 1, 130th St., \$105 mo. OS 5-6285.
 E

APT., 1 & 2-bdrm, 2-bath, unfurn, Gold Medallion elec., near King Harbor, closed aars, w/storage lockers, \$110 & \$125. FR 2-0448.
 E

APT., 2-bdrm., unfurn., pvt. patio, 1/2 block to Hawthorne Blvd., \$120 mo. 676-5622.
 E

HOUSE, 1/2 of modern double, 2-bdrm., 2 bath, fireplace, patio, aar., close to beach, stores & trans., no pets, appt. only, \$200 mo. FR 2-5330.
 E

APT., 1-bdrm., cus. decorated, sub. parking, pvt. deck & pool, \$115 mo. 373-1143.
 E

CABIN, Crestline, near Lake Gregory, sleeps 6, \$60 wk. EX 1-2040.
 E

APT., 1-bdrm., unfurn., pvt. patio, closed aar., \$95 mo. FR 5-0867.
 E

APT, unfurn., 2-bdrm., pool, patio, all extras, \$115. DA 9-5986, DA 3-1946.
 E

HOUSE, 2-bdrm., rear, w/aar., lawn service, close to Northrop, 1 child OK, no pets, \$105 mo. OS 6-8768.
 E

APT, 1-bdrm., near Northrop, lge. rooms & closets, carports, water & trash pd., furn., \$90; unfurn., \$80. OS 5-9695.
 E

APT, 2-bdrm., unfurn., laundry fac., 1 block from Northrop, \$115 mo. OS 9-2112 weekdays.
 E

HOUSE, unfurn., newly painted, water, trash & gardener paid, \$120. OS 6-5921.
 E

APT, 2-bdrm., unfurn., water & trash pd., near shopping, school, Northrop, \$95 mo. DA 9-0314.
 E

CHALET, A-frame, Mammoth Mtn. Lakes, 6 bdrms., 2 baths, sleeps 18, fireplace, sun deck, comp. furn., June-Oct., \$125 wk. TH 2-8205.
 E

HOUSE, 1-bdrm., redecorated, carpets, water paid, near Hawthorne Blvd., \$90 mo. DA 3-4116.
 E

PERSONAL

WRITTEN WORDS are inadequate to express our thanks to all our Northrop friends for the expressions of sympathy & understanding over the recent passing of our beloved mother, PHILIA MARTIN & PEARLIE BASINGER.
 L

FOR SALE OR TRADE

FORD Galaxie, 1961, 2-dr., r/h, 390 cu. in. Hurst trans., stick, \$1495 & assume \$1000 bal. or trade for good trans. auto. 835-9486.
 M

STEREO HI-FI EQUIPMENT, Heath AM-FM tuner, multiplex adapter, amplifier, 2-speaker systems, Garrard type-A turntable, \$300 or trade for cabinet stereo set. FR 7-3244.
 M

term is Bill Wareing, former Club representative and Scout commissioner.

Secretary is Ross Kongable, former representative.

Treasurer is Jack Wilson, re-elected for the second term. Jack also served a stint as commissioner of the very successful Model Railroad Club.

Sergeant-at-arms is Howard Butler, former representative and commissioner of the Camera Club.

Special guests for the evening were Mr. and Mrs. John B. Clark, Norair director, Industrial Relations; Mr. and Mrs. John Breneman, director, night Operations; Mr. and Mrs. Paul Crews, assistant director, Industrial Relations; Mr. and Mrs. Lyle Cripe, chief, Employee Relations; and Mr. and Mrs. Dick Pryor, general supervisor, Personnel Activities.

Mr. Clark, founder of the Northrop Recreation Club in

1941 and Mr. Breneman, first Club president that same year, were honored by the membership each receiving wall plaques commending their long years of service and outstanding contributions in support of Club affairs.

Mr. Van Allen who will guide Club program for the coming year has been with the Company since 1957. He has successively held the positions of project accountant and supervisor, Reports branch both in Cost Accounting, and supervisor, Budget Administration.

He was educated at New York University's School of Commerce, Accounts and Finance. He received his bachelor of science degree majoring in accounting in 1951.

His main hobby? Mountain climbing.

The Van Allens, Bob and wife, Joyce, have four children, Susan, 15; Jim, 13; Barbara, 8; and Tommy, 6.

Engineering Lab Man to Budapest for Model Meet

Donald L. Burke, Environmental Laboratory, Engineering Laboratories, is a participant in the World Model Airplane Controlline championships being held at Budapest, Hungary, July 28 through August 3. The championships are sponsored by the Federation Aeronautique Internationale (FAI) and hosted by the Hungarian Aero Club.

Mr. Burke with Dan Jones of Arleta, California, and four other Californians will be part of a 12-man team representing the United States. The U.S. team includes three representatives in each of three events: speed, precision aerobatics and team racing. Mr. Burke and Mr. Jones are one of the team race participants. The team race flyers were selected through two days of competition early in May at three sites around the country, Los Angeles; Huntsville, Alabama; and Johnsville, Pennsylvania. A total of 23 teams competed with the top three, nationwide, named as U.S. representatives.

The team, a pilot (Jones) and mechanic (Burke), operate and fly an airplane on specified length wires against the clock for 100 laps (10 kilometers). Three teams fly in the same circle at once so the pilots have to keep on their toes to keep things going smoothly.

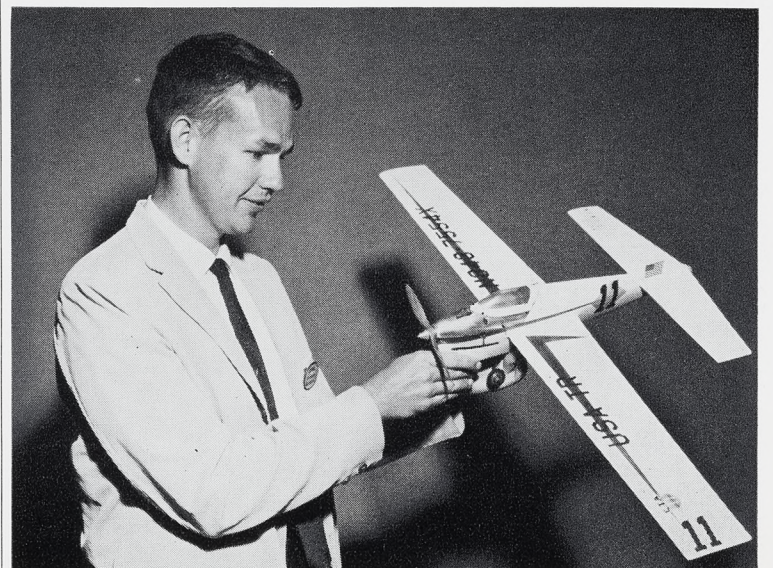
LOANS

Automobile



Home Improvement

See Your Credit Union
STATION 617



TO HUNGARY—Don Burke in international competition.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, August 12, 1964

HAWTHORNE

EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

August 10-14 Declared Safety-Toe Shoe Week

This week, August 10-14, has been designated special Safety Shoe Sale Week at Norair Hawthorne, it has been announced by Lee Johnson, chief safety engineer.

With a complete selection of Hy-Test footwear on the Safety store shelves ranging all the way from Cordovan oxfords to heavy logger-type boots with many intermediate types ideally suited for assembly line wear, Safety Shoe Sale Week is intended to remind all personnel of how important it is to protect those tootsies as you come and go about your daily aerospace tasks. A broken toe is about as painful as they come, say those who have suffered same.

Hy-Test safety shoes feature the anchor flange steel box toe designed to withstand heavy impacts.

International Shoe Company, makers of Hy-Test equipment has also added something new

safety-wise in their instep guard which is an additional spring shank steel plate that conforms to the arch portion of the foot.

Prices for Hy-Test safety shoes range all the way from \$11 for a safety-toed oxford to \$15 for fully reinforced Hy-Climber boots with double thicknesses of leather.

Norair Safety shoe store is located at Plant One in the spar mill area. Hours are 9 a.m. to 4:45 p.m. every day but Thursday when the hours are from 1 to 6 p.m.

Safety shoes may be purchased via payroll deduction with no carrying charge and no down payment.

A wide variety of safety shoes are kept in stock to fit individual likes and dislikes, and there are over 300 distinct styles available in the Hy-Test line. If the shoe store doesn't have your particular shoe on the shelves, special orders will be made.

T-38 Hits Quarter Million Flying Hours—UPT Program

During last month, the T-38A aircraft assigned to the USAF Air Training Command's Undergraduate Pilot Training program (student) reached the 250,000 flying hour mark, it is reported in Norair's Talon Service News.

From the first flight, the T-38A Talon has maintained the lowest attrition rate of all supersonic fighter-trainer aircraft. In addition to the quarter million flying hours flown by UPT students, an additional 9000 T-38A flying hours have been accumulated at the USAF Flight Test Center, Edwards Air Force Base.

The quarter-millionth flight

hour was achieved at Webb Air Force Base, Big Spring, Texas, it is stated by the Prairie Pilot, base newspaper.

At the controls were Major General Neil D. Van Sickle, DCS for Flying Training at Air Training Command headquarters, and 2nd Lieutenant James L. Jamerson, Webb student pilot and member of Class 65-A.

Webb further reported that their T-38 Talons have almost one-third of the 250,000 flying hours with a total of 81,938.67 hours since the T-38 first went into operation there in the fall of 1961.

Dick Horner to Address Next Management Club Meeting

Norair Division General Manager Dick Horner will address the Northrop Management Club this coming Friday, August 14 at the Pen and Quill Restaurant, 3501 North Sepulveda, Manhattan Beach.

Social hour begins at 5 p.m. with hors d'oeuvres and refreshments. Dinner will be served from 6 to 7:30 p.m. with a choice of

steak or lobster.

Mr. Horner is scheduled to speak at 8:20.

Special entertainment to follow consists of Jimmie Ames, comedian, and vocalist Arlene Wells.

There will be door prizes and raffle prizes with the attendance prize consisting of two shares of Northrop stock.

Blood Bank Today
PRODUCT DISPLAY BUILDING
7:30 to 11:30 a.m.
and
4:30 to 9:30 p.m.
QUOTA — 500 PINTS
Today

"Key Plan" Source Control Is Big Assist to Quality

PROVIDES PERSONAL CONTACT WITH 8000 VENDORS

The Key Plan.

Coordinated control of procurement source quality—

In a significant step forward to better serve Norair product quality and at the same time scoring heavily for the Company's cost reduction program, the Division has joined forces with all other segments of the Corporation in implementing a "personal contact" communications system with suppliers throughout the United States and Canada.

The need for a far-reaching system to closely control quality standards at the source becomes apparent when it is known that Company vendors and suppliers number over 8000 and are situated in practically all states in the Union and several Canadian Provinces.

The Key Plan departs from the time-honored "send a man from the home office" methodology and places Quality Control representatives empowered to serve the needs of all divisions within the Corporation, in all strategic supplier centers. These men are highly skilled, long of experience, good decision makers and all with a high degree of management ability. Of top assistance to the program are long-time Norair Materiel men Bob Schaeffer and Ed Herzig, eastern procurement representatives.

The Key Plan divides the country into two major quality and procurement segments—Mississippi-east and Mississippi-west. This line of demarcation continues on into Canada. East and west are further divided into areas compact enough so that on-site representatives can in person reach any vendor or subcontractor in less than two hours.

The Key system obviates the problem of heavy travel expenses normally expected in the quality managing of a supply organization of Northrop magnitude.

First visualized by Bob Catlin, Norair manager, Quality Control, over a year ago, Key

Plan concept, details, and briefings were worked out by Dan O'Halloran, chief, Quality Control.

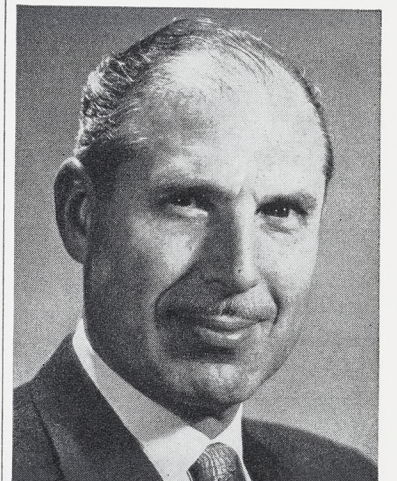
The Key Plan was presented to the Corporate Quality Control committee, whose members include the senior quality control executive in each element of the Corporation. This group recognized the potential benefits which would accrue if the Key Plan was used by all divisions and established a task force, with a quality control representative from each division to work out details acceptable to all. This task force, whose chairman was Northrop Norair's Larry Knight, not only was successful in resolving Key Plan problems but also prepared a uniform Quality Control Specification for Vendors, QC-500, to be used throughout Northrop Corporation.

These proposals were then referred by the Corporate Quality Control committee to the Corporate Director of Materiel, J. W. Hinchliffe, jr., who provided valuable assistance in formulating the proposed Corporate Executive Bulletins, after consultation with the Materiel directors in each division.

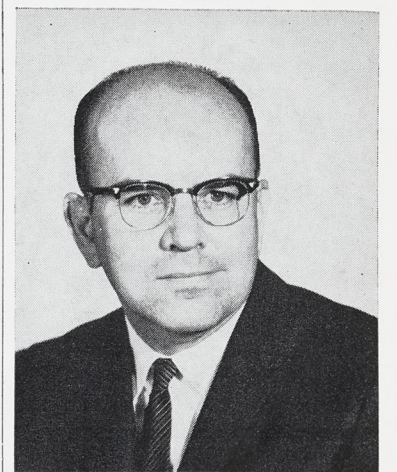
On September 9, 1963, Dr. William F. Ballhaus, executive vice-president, issued Corporate Executive Bulletin 35, "Standardization of Quality Control Requirements for Suppliers" and Corporate Executive Bulletin 36, "Control of Procurement Source Quality—Key Plan," and assigned responsibility for "monitor-

ing the effectiveness" of these two programs to the Technical Advisory Council on Quality and Reliability.

The Corporate chairman of this
(Continued on Page 3)



BOB CATLIN



DAN O'HALLORAN

Northrop Personnel in All Night Ranger Vigil

Northrop personnel from all segments of the Company and from all levels of activity, high and low, maintained constant vigil last week through the late and early morning hours as they watched with intense pride the progress of the Ranger lunar photo mission.

Among the first to extend congratulations to the Jet Propulsion Laboratory and the National Aeronautics and Space Administration for the historic achievement were Northrop President and Chairman Thomas V. Jones, and Senior Vice-president Dick Horner, general manager, Northrop Space Laboratories and Norair Division.

Mr. Jones stated, "The Jet Propulsion Laboratory and NASA are to be congratulated for a superlative performance. We at Northrop feel it a great privilege

to be counted among those companies that have contributed to Ranger."

Northrop's work on the Ranger included engineering support provided to the Jet Propulsion Laboratory by NSL, and from the Nortronics Division important guidance and attitude control systems such as the sun sensors, the short-range earth sensor, the central computer and sequencer and other electronic control devices.

Mr. Horner said, "The outstanding success of the Ranger photo mission is indeed a giant step forward in space technology. We all join Mr. Jones in congratulations to JPL and NASA. It is also my distinct pleasure to extend 'well done' to Nortronics Division and Northrop Space Laboratories for so ably performing their assignment in this achievement."

A Pleasurable Experience

In a discussion recently with Bob Van Allen, chief, Project Budgets group and recently installed new president of the Northrop Recreation Club, the subject turned to the duties and responsibilities of a supervisor. Bob made a very astute observation which I think bears repeating.

He said, "By putting problems in their proper perspective as challenges rather than irritations, the job of a supervisor becomes largely a 'pleasurable and satisfying experience.'" Going on,

tion Colonel Ree had the following to say:

"On behalf of all of the officers and enlisted men of the 306th Psychological Warfare Battalion, I extend to you the thanks of a grateful Unit for the important and excellent work you have done in the United States Army Active Reserve program. Your readiness to serve, regardless of personal sacrifice, reflects the type of man so necessary to maintain our nation's military strength. We are particularly proud

By John B. Clark

Norair Director, Industrial Relations

Bob stated, "There occasionally arises an event apart from everyday work which is gratifying to the employee and makes the supervisor realize that the good people he supervises, as our President Tom Jones has said, are 'our greatest asset'."

To illustrate, Bob then brought forth an unusually fine commendation recently received by a member of his group, Sergeant Major Alexander Pawluk. The commendation was written by Lieutenant Colonel Otha G. Ree, jr., commanding officer of the 306th Psychological Warfare Battalion, upon the occasion of Sergeant Major Pawluk's completion of 20 years' service.

So impressed was Bob with this commendation that he requested this column reprint it so that Sergeant Major Pawluk's many friends and associates might share it and get to know their valued associate better. The document is dated June 28, 1964 and in this letter of commenda-

of your constant and loyal work as Battalion Sergeant Major during the past four years. This assignment has posed many extremely difficult problems; as Sergeant Major you met all of these with the highest degree of resourcefulness, initiative, and professional skill.

"We commend you not only because you have made a real and tangible contribution to the 306th Psychological Warfare Battalion, but also because you have made a definite contribution to our nation's freedom and peace.

"As you retire, we will remember you in every way as a friend, civilian, and a non-commissioned officer. May all of your future plans be fulfilled and a hearty farewell from us all.

"A copy of this commendation will be placed in your 201 file."

We are grateful to Bob Van Allen for bringing this to our attention and are mighty pleased to comply with his request.

With its publication herewith also go our own sincere congratulations and best wishes to Sergeant Major Pawluk.



SAFETY FILM SERIES—"That They May Live" presented by Safety and Fire Prevention branch was a hit. Second, "Safety Township Anywhere" by General Motors was also a hit. "That They May Live" showed hospital scenes proving the efficacy of mouth-to-mouth resuscitation, how to relieve suffocation, what to do for drowning victims, electric shock. Watch Safety bulletin boards for program time and place. In photo are M. C. Hithe, 5753, Phyllis Williams, 5510, and John Dew, foreman, 5517.

Report Industrial Injuries to Medical Group—Don't Delay

Norair's Safety and Fire Prevention branch reminds all personnel that in case of industrial injury the person injured is required to report immediately to

the Northrop Medical group.

This is a work rule spelled out in Working with Northrop, personnel manual, section 2, page 2 under Medical.

It is requested that anyone involved in an industrial injury make a report before leaving the Northrop premises.

An industrial injury is one which occurs in the course of assignment of duties when the injury arises out of a specified employment.

Direction for outside industrial medical treatment is to be obtained from the Norair Medical group prior to treatment during

off-duty hours. If treatment is needed on weekends or holidays and if the Medical group does not respond, treatment requests should be called to the Plant Protection Control office, extension 2141.

Improper clearance with Company and industrial injury rules may result in denying payment for treatment obtained from outside sources. Private injuries and illnesses are nonoccupational, it is pointed out by the Safety and Fire Prevention branch, and should not be reported as occupational. Group Insurance takes care of injuries in this category.

You Want to Vote? Okay But Can You?

Of course you intend to vote in the November 3 presidential election, but can you?

If you are a new resident in the state of California there might be problems.

Under state law, a person who has been a resident of California for at least 54 days but less than one year prior to a presidential election may vote for presidential electors at that election but for no other offices, provided:

He was a qualified voter in another state immediately prior to his move to California.

He would have been eligible to vote in his former state had he remained there until the presidential election.

He submits a "Certification of Qualifications" form properly filled out by his former state.

If you meet the qualifications for a new resident voter, you must comply with the following:

Registration between August 5 and September 10 in office of Registrar of Voters only.

At time of registering as a new resident, a form, known as a Certification of Qualifications, will be issued by the Registrar of Voters office, which is to be immediately sent to the former state to be filled out by the appropriate official.

Voting is done in the office of the Registrar of Voters, 808 North Spring Street, Los Angeles. This is the time for presentation of completed Certification of Qualifications form.

You may vote your special ballot on any one of the days from October 29 through November 2.

There will be no new resident voting on election day. All new resident voting must be completed November 2.

NRC CAMPING CLUB OFF TO LOST FRONTIER

It will be into the pickup and off and away to the "Lost Frontier" campground for the NRC Camping Club on the weekend of August 23, it has been announced by Max Douglas, commissioner.

All camping members and their friends are invited.

The Lost Frontier is located about halfway between Fawnskin and Highway 18 across from Big Bear City, San Bernardino mountains.

There will be a potluck Saturday night at 5:30 p.m. with movie and big bonfire. Horses can be rented for \$1.50 an hour, hay rides are 25 cents, swimming in the pool all day, 50 cents.

The campground is in the pine trees.

Norair Division Training Head Attends Maine Meeting

Norair Administrator Education and Training, Larry Walton, recently attended the 72nd annual meeting of the American Society for Engineering Education (ASEE) at the University of Maine.

Theme of the meeting which brought together over 4000 industrial educators and space age training representatives was "Education for the Expanding Spectrum of Technology."

Attendees on hand were from defense-oriented companies, commercial organizations, and government agencies. Virtually all of the nation's engineering and technical schools were also represented.

Topics of discussion covered such subjects as:

"Programmed Learning for Technical Programs."

"Continuing Education."

"The Systems Approach in Undergraduate Engineering Education."

"The Federal Government and Technical Institute Education."

"Liberal Elements in Communication, Social Sciences, and Humanities."

"Last Step in Engineering Education."

"Graduate Education in an Expanding Technology."

Mr. Walton, newly appointed head of Education and Training, comes to Norair from the posi-

Academy, 1957 to the spring of 1960.

Mr. Walton is a member of the American Society for Engineering Education, and is editor of the section publication "Nuggets." He is also vice-chairman, Relations with Industry committee, and a member of the organization's executive board.

Other activities include memberships in the American Society for Training Directors; Los Angeles Trade-Technical College Advisory board; the Curricula Planning board for the Electronic



LARRY WALTON

Industries Association; and the Executive Programs Advisory board for the University of Southern California.

Mr. Walton is presenting a series of briefings on Northrop Corporation's career development program to Company management and supervision covering in-house education, educational refunds, graduate study paid academic time off, residence graduate study and loan fund, directed attendance, and undergraduate study paid academic time off.

He has appeared before the Technical and Administration organizations and is now arranging presentations for Operations, Finance, and Quality Control.

NORTHROP NORAIR NEWS

VOL. 22 NO. 13

3901 W. Broadway, Hawthorne, Calif. 90250

A NORTHROP CORPORATION PUBLICATION
NORAIR DIVISION

Published every other Wednesday

CHARLES BRADFORD, Editor

Permission to publish material with credit to Northrop Norair News will be granted. News office extension—2456. Outside lines—678-9111, OS 5-4611.

BUY BONDS

tion of supervisor, Customer Training, Nortronics Electronic Systems and Equipment department.

He holds a B.S. degree in psychology from the University of Denver and is now a candidate for a master's degree in industrial psychology and business administration at Long Beach State College.

He retired in the rank of major from the Air Force after 19 years service. His military positions include director of Operations Reports and Analysis for SAC, and immediately prior to coming to Northrop, a three-year tour as instructor, United States Air Force

Allis Chalmers Dishes Up Very Tasty Safety Recipe

From the A-C Line,
Allis Chalmers Mfg. Co.
Newsletter
La Porte Works

Quote: "Our 1964 safety record at La Porte Works is fair in some areas, however, industrial injuries have plagued us immensely through the first two quarters of this year.

"The period, January 1-June 30, shows 14 employees injured resulting in time lost from work. During 1963, we had only 15 such cases for the entire year.

"With 50 percent of the year still ahead of us, we have an opportunity to make it a more safer year and prevent additional

loss of time and money through needless accidents.

"We ask all employees to be concerned by taking a little extra precaution in whatever you are assigned to do. To assist you, we offer the following recipe for working safely:

"...one pair of safety glasses.

"...one pair of safety shoes.

"...mix well with safety regulations.

"...sprinkle liberally with care and common sense.

"...practice 8 hours a day.

"...enjoy ever lower accident rates with plenty of employee safety for all who follow the recipe."

Key Plan Quality Assist For Norair Products

(Continued from Page 1)

Council is Dr. Alexander Weir, jr.

The problems of a widely spread and extended source of supply are best attended to by personal contact between Company men and the vendors. This entails travel which, with tight budgets and critical time demands, precludes consistent visits to vendor premises. Visits to those east of the Rockies become especially difficult.

"The natural tendency," states Mr. Catlin, "was to put off visits to the east coast wherever possible and as long as possible. This lack of liaison inevitably creates an atmosphere where quality and schedule must suffer.

"The Key Plan makes it possible to have Company Quality representatives in the immediate or near vicinity of all vendors and suppliers at all times."

Presently, the eastern segment of the Key Plan with base offices at Northrop Norair Precision Products Department in Norwood and under the direction of H. I. Johnson, director, Quality Control, PPD, has representatives in Detroit, Cleveland, Columbus, Windsor Locks, Broadbrook, Hartford, Elmsford, Sarasota, New York, Joplin, Chicago, Waukesha, Yellow Springs, Dayton, Hillside, and Long Island.

In the west with base offices at Hawthorne, Key representatives cover San Fernando, Pasadena, El Monte, Inglewood-Culver City, Huntington Park-South Gate, Torrance, Pomona, Santa Ana, Phoenix, Portland, and Tulsa. Mr. Catlin manages Key Plan affairs in the western part of the operation.

In Canada, representation is maintained in Montreal and Kitchener. In charge of the Canadian Key office at Kitchener is Warrant Officer Charles Buchan, RCAF retired, who in turn is responsible to Norwood.

Funds for Key Plan operation are underwritten on a prorata basis by using divisions; each division paying for the number of hours and administrative time required to conduct its quality needs in the various areas.

Much of the work done by the Key Plan base office and personnel and field representatives is routine. However, when quality emergencies arise on the assembly line, a telephone call to the Key man in the field and a few minutes conversation will correct a situation that formerly in all likelihood would have re-

quired a transcontinental airplane ticket plus the attendant expense of a week or more on the road.

The vendors themselves enter strongly into the success of the Key Plan. All suppliers operate under a beneficial Key surveillance program which performs preventive supervisory audits with a Key inspector being responsible for inspection effectiveness in his zone of activity. When a vendor has satisfied the high level requirements of the Key Plan he is awarded a certificate that so testifies with a serial numbered stamp to be used on parts originating in his shop. Material bearing this stamp is passed with minimum inspection upon arrival in Hawthorne and goes directly and quickly to inventory and from there to the assembly line.

Key Plan awards are based on the supplier's ability to demonstrate excellence and outstanding achievements in quality control and by sustaining compliance with the requirements as established by the purchase order or subcontract data.

A monthly surveillance by the Key Plan area inspector keeps the Company currently appraised of the supplier's quality performance. Failure to maintain the standard of quality upon which the Key award was made is considered cause for suspension of the award. Should deficiencies occur, Company men study the condition and render a full report and furnish the supplier with the recommended necessary course of action to bring about reinstatement.

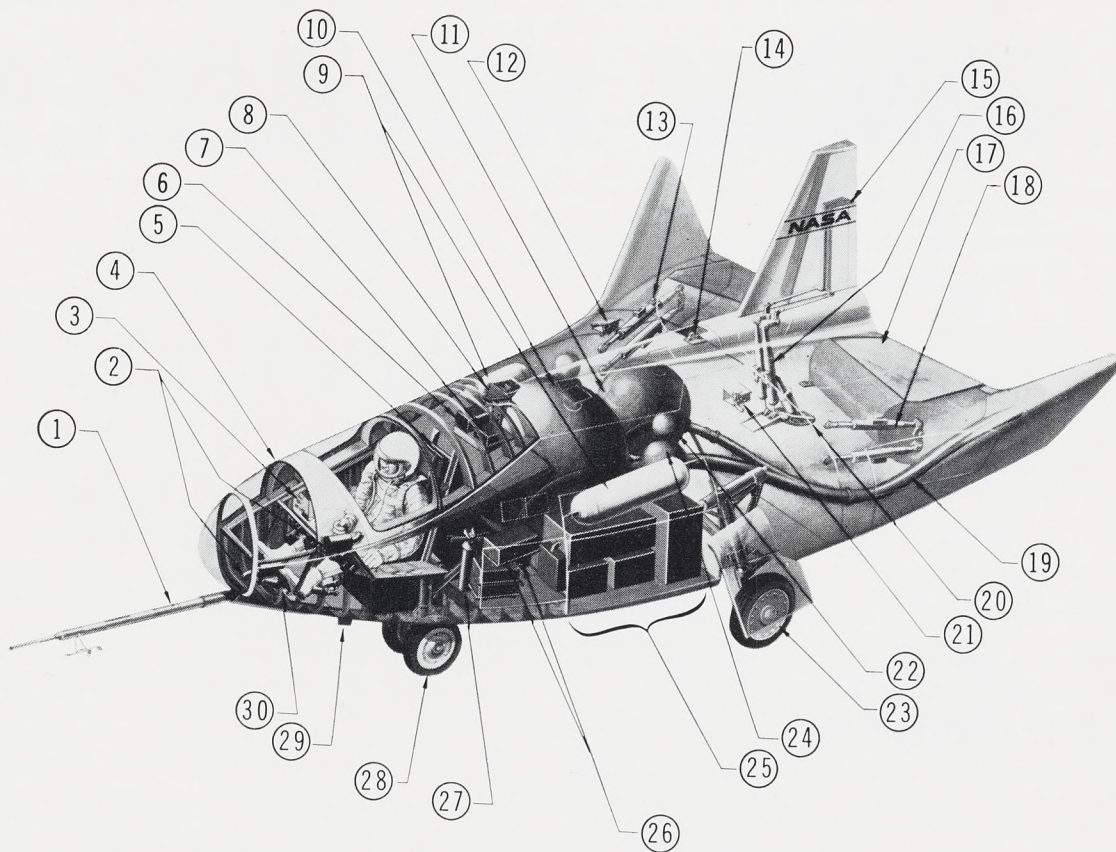
All products delivered sans the Key stamp are, of course, subject to the normal Quality Control inspection procedures.

Mr. Catlin and all members of the Quality Control organization wish to emphasize that without the wholehearted support and cooperation of Technical, Manufacturing, Materiel, Contracts, and Finance, the quality and cost gains attributed to the Key control plan would have been impossible.

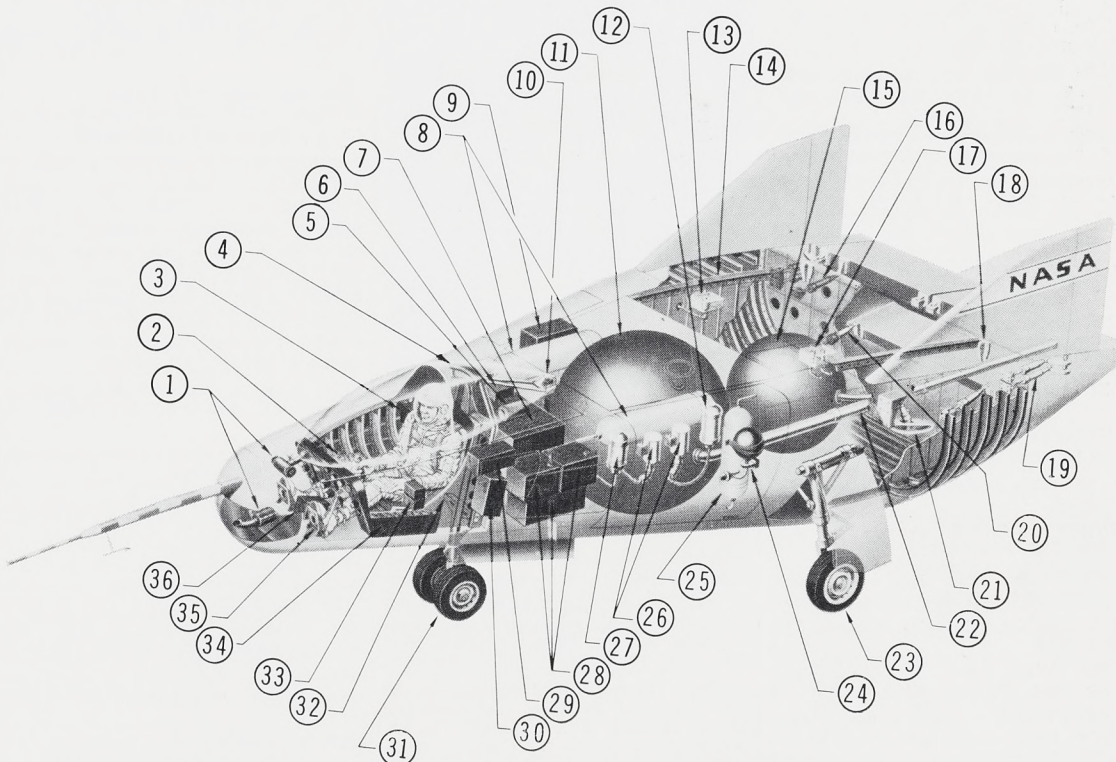
He pointed out that before a vendor can be awarded the Key control certificate, Materiel must concur with their opinions based on their own independent capability survey.

"The outstanding quality record of the T-38 and the F-5 airplanes is traceable in large part to Corporate and Division teamwork on such management tools

Cutaway Views of HL-10 and M-2



THE HL-10—(1) Pitot, static airflow sensing boom; (2) defog electric blowers; (3) RH console; (4) roll over protection; (5) modified Weber T-37 seat; (6) attitude gyro; (7) 3 axis rate sensor; (8) B-52 forward attach fitting; (9) air tanks, cockpit pressure; (10) ballast tank forward; (11) aft ballast tank; (12) oxygen and air umbilicals; (13) B-52 adapter bearing and drag fittings, 2 outboard; (14) B-52 attach fitting; (15) rudder; (16) rudder actuators; (17) elevon; (18) elevon actuators, 2 each side; (19) ballast dump system; (20) F9F tail skid; (21) electrical umbilical; (22) air tank, aft ballast dump; (23) T-38 wheel, F-5 landing gear; (24) air tank, forward ballast dump; (25) instrument package compartment, LH side power source batteries, hydraulic reservoir systems, hydraulic pumps, RH side; (26) static inverters, 2; (27) ram air turbine; (28) T-39 mod. nose gear; (29) UHF antenna; (30) flight controls.



THE M-2—(1) Defog electric blowers; (2) RH console; (3) defog battery; (4) roll over protection; (5) attitude gyro; (6) 3 axis rate sensor; (7) instrument package; (8) air tank, cockpit pressure; (9) power source battery 1; (10) B-52 forward attach fitting; (11) ballast tank forward; (12) hydraulic reservoir system 2; (13) electrical umbilical; (14) keel beam; (15) aft ballast tank; (16) upper flap actuators, 2 outboard; (17) oxygen and air umbilicals; (18) B-52 attach fittings, 2 outboard; (19) rudder actuators, 2 each side; (20) lower flap actuators; (21) F9F tail skid; (22) ballast dump system; (23) T-38 wheel, F-5 landing gear; (24) air tank aft ballast dump; (25) air tank, forward ballast dump; (26) hydraulic pumps; (27) hydraulic reservoir system 1; (28) power source batteries; (29) stability augmentor; (30) static inverters, 2; (31) T-39 mod. nose gear; (32) modified Weber T-37 seat; (33) UHF transceivers; (34) LH console; (35) flight controls; (36) defog battery.

as the Key Plan," Mr. Catlin stated.

News readers will recall that the T-38 has already achieved the lowest rate of attrition for any supersonic aircraft. The most recent figure being 3.96 per 100,000 flying hours with no accidents attributed to materiel failure. Furthermore, the T-38A is the only supersonic aircraft to complete the entire Category I, II, III flight test programs without an in-flight accident, a ringing testimony to the quality of the aircraft.

The F-5A and B, although

much more complex than the T-38 with a fighter, high-level bombing, low-level close support requirement has given indication that it too will achieve similar fine quality records.

Jack Young is director, Norair Manned Aircraft Quality Control.

Materiel people find that the Key Plan performs a valuable assist to their vendor relationships and procurement schedules. In commenting on the success of the Plan, Carl Hood, director, Materiel stated, "The Key Plan has been in operation almost a

year and it has already proved its worth by producing a constant record of benefits. The Key Quality Control award presents an excellent challenge to all our subcontractors and suppliers. Once obtained, it is jealously guarded.

"Materiel welcomes the Key Plan as a new and modern tool that will help Norair produce better aerospace products at lower costs. It also performs valuable assistance to the industry by eliminating many of the problems inherent in a cross country purchasing operation."



RIDES WANTED

7 a.m. — 3:45 p.m.

VALLEY DR. & GOULD LANE, Hermosa Beach. B. Briacs, ext. 2596, 374-3333.

WESTERN & 208TH, Torrance. John A. Cable, ext. 2200, 320-2827.

VENICE & CENTINELA AVE., Mar Vista. Richard Lynch, ext. 2004, 398-2478.

LA BREA & HYDE PARK BLVD., Inglewood. Geo. Goodenkauf, ext. 2173, 2625, OR 4-7743.

8 a.m.—4:45 p.m.

AYALON BLVD. & 190TH, Gardena. Shirley Heimer, ext. 2521, DA 3-7129.

HARDY ST. & PRAIRIE AVE., Inglewood. Allie Steinmetz, ext. 1391, 1392.

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

FREEZER, upright, Carrier, 22 cu. ft., \$125. 394-6160.

TWIN BED SET, 3-pc., \$110. DA 6-5558.

TEMPEST LeMans sport coupe, 1963, V-8 326 ena., r/h, Hydramatic, p/s, p/b, w/s/w, 17,000 mi., \$2150 or best offer. DA 7-8994, DA 9-9464.

CABIN CRUISER, 16', sleeps 4, 35-hp. Evinrude, tilt trailer & access., \$850. 320-1301.

RANGE, Kenmore elec., deluxe model, 36", 5-yr.-old, \$75. 370-4025.

CHEVROLET, 1955, stick shift, 43,000 oria. mi., \$300. DA 7-8412.

DRYER, Norae deluxe, aas, \$50. 377-6648.

TRAILER HITCHES, Bal Kamp for 1949-1962 Chevrolet & Universal clamp-on type. \$4 ea. OS 6-1985.

CEMETERY LOTS, Inglewood, Siesta plot, dble. interment, \$1000. 373-1689.

GUITAR, Martin D-18, \$135. EX 7-0667.

CHEVROLET V-8 station wagon, 1957, \$600 financed, \$500 cash. NE 5-9944.

TV, 17" table model, reconditioned, \$25. 330-3667.

SEWING MACHINE, zig-zag portable, Bernina, \$35. ME 3-2395.

FURNACE, floor-type, dual wall, 57,000 btu. \$30. OR 0-4702.

REFRIGERATOR, Friaidre, 9 cu. ft., \$50. OS 6-1673.

MIXER, West Bend, portable, yellow, never used, \$15. 391-4698.

VOLKSWAGEN, 1964 sedan, radio, w/s/w, trailer hitch, sunroof, 3800 mi., \$1995. 675-1031.

SEWING MACHINE, Kenmore console, \$35. OS 6-9462.

CADILLAC Fleetwood Special, 1957, factory aircond., Alcoa Hayes Cadillac alum. wheels, new Goodrich 880 dual w/s/w, \$1100. LO 7-1884.

FORD panel, 1957, standard shift, o/drive new tires & brakes, recently o/hauled, \$450. OR 3-4434.

STERLING SILVER, Westmoreland, Milburn Rose pattern, 4 knives, 4 forks, 4 spoons, \$35. OR 1-0657.

CHEVROLET Impala coupe, 1960, hvy. duty clutch, 3/4 racing cam, 4-spd., many extras, \$1395. OS 6-3589.

SURFBOARD, 9' 4" Shark, \$75. 371-5308.

TV, 21" Magnavox, \$13. FR 1-8590.

ROLLAWAY, 2-drwr., \$15. AX 1-4063.

DINETTE SET, 5-pc., Formica, \$20. 322-4027.

TABLECLOTH, handmade, lace, \$25. AX 1-2305.

FORD, 1960 Galaxie, 4-dr. sedan, p/s, p/b, r/h, o/load rear springs, trailer hitch, \$1250. AX 3-1492.

AIRPLANE, Cessna 170B, TTA & E 890, 2 VHF radios, omni, scope, prop spinner, wheel pants, \$4700. FR 4-2915.

AMPLIFIER, Fender Bassman, \$300. FR 4-9974.

SEWING MACHINE, Kenmore, all attachments, \$30. 370-4444.

PONTIAC Bonneville, 1960, auto. trans., p/s, p/b, r/h, \$1500. 288-1272.

FOR SALE

BUICK Special station wagon, 1962, p/b, p/s, r/h, \$2050. FR 6-6683.

ALFA ROMEO Veloce Spyder, 1962, 5-spd., 4.55 rear end, comp. suspension, \$2150. 714, 673-7262.

BEDROOM SET, arary, complete, \$65. FA 0-2862.

CORVETTE, 1960, new top & tires, tonneau, \$2050. 379-3477.

HO TRAIN LAYOUT, deluxe w/engines, cars, \$50. 678-2728.

CADILLAC, 1958 convertible, \$950. FA 1-0706.

CARPET, 10'x14' Chinese, rose floral pattern, reversible, \$150 or best offer. TO 6-3349.

AM-FM RECEIVER, Masco, 10-watt, 4-spd. changer, Webcor, speaker, GE 1201D, \$50. TO 7-0593.

SURFBOARD, 9' 1" Noll, orange pigment, clear glass skea, \$45. FR 7-6278.

CLARINET, Evette & Schaeffer, made in France, wood constr., nickel-plated keys, \$100. 679-2387.

DE SOTO Firesweep, 1959, 4-dr. sedan, auto. trans., p/s, \$600. 375-2490.

CHINA, Easterlina damask pattern, 4 5-pc. place settings & creamer & sugar, lae. bowl & platter, open stock, \$100. EA 2-0678.

T-BIRD, 1957, stick & o/drive, p/b, p/s, r/h, \$1795. 374-2364.

FORD coupe, 1949, new paint, \$125 or best offer. 670-8993.

SURFBOARD, Jacobs, 8' 11", \$35 or best offer. OR 0-2268.

VOLKSWAGEN, 1961, radio, sunroof, \$1250. FR 2-5367.

FORD, 1957 country sedan, 4-dr., 9-pass., r/h, auto., w/s/w, \$425. PL 6-0015.

CABIN CRUISER, 1959, Glasspar Delmar, American trailer, completely equipped, \$1595. 941-5240.

TEMPEST, 1962 convert., auto. trans., \$1750. 323-6004.

HOUSE, 3 blks. to Norair, 2-bdrm., lae. R-2 lot, carpeted, built-ins, fenced, patio, landscaped, \$19,500. OS 9-6982.

CHEVROLET, 1948 club coupe, new paint, ena., tires, \$400. 324-8789.

TENOR SAX, Buescher, \$150. FR 4-6003.

VACUUM CLEANER, Kenmore upright, \$10. 371-9730.

TABLE, round oak w/chairs, \$60. OS 6-1018.

HOME, West Torrance, corner lot, 3-bdrm. & family room 1 1/2-bath, fireplace, ash paneling, cabinets, built-ins, lae. covered patio, 3-car detached gar., near schools & shopping, 20% down, \$33,250. FR 2-2902.

LIMIT—ONE ITEM

SOFA, modern, custom-built, 7', charcoal, \$125. DA 5-5245.

BICYCLE, girl's 24" J. C. Higgins, \$12.50. FR 5-7038.

BICYCLES, boy's 20" & 26", \$10 ea. PL 5-4497.

OUTBOARD MOTOR, Buccaneer 12, needs prop, \$75. FR 5-0061.

MERCURY station wagon, 1962, 9-pass. Colony Park, p/s, p/b, auto. trans., air-conditioned, \$2450. 671-8008.

SPINNING REEL, salt water-type, Super Quick w/2 spools filled w/15# & 30# line, \$15. FR 4-7546.

ORGAN, Kimball transistorized, model 200 Caravelle, 2-manual, self-contained Leslie speaker & transformer, bench, self-teaching course & other music books, 16-mos.-old, \$850. 758-3747.

RANGE, full-size Roper, aas, \$20. TE 3-4226.

BANJO, 5-string, Silvertone w/removable resonator, \$40. LO 7-4335.

TRAILER, camper/utility, \$125. Box 1301.

STOVE, Sears 36", white, aas, 1962, \$50. DA 9-9702.

CAMP-TRAILER, 13', alum., 1960, sleeps 2, fully equipped, spare tire & wheel, \$400. OR 4-4254.

REFRIGERATOR-FREEZER, 2-dr., 14 cu. ft., white, 6-yr.-old, Philco, \$100. FR 2-0067.

TAPE RECORDER, Pentron Hi-Fi, 2 speeds, \$45 or best offer. 878-5732.

PONTIAC Catalina, 1956, V-8, Hydramatic, p/s, p/b, r/h, \$350. FR 4-5286.

FORD, 1956, 6-cyl., stick, tires good, \$200. 371-6775.

CHEVROLET station wagon, 1955, r/h, \$350. DA 6-4050.

PARTS for Honda motorcycle, worth \$100, \$15. 292-4044.

TWIN BEDS, walnut headboards, 3-yr.-old, \$75 ea. DA 9-4762.

BOOKS, Great Books of the Western World & Gateway series, bookcases, 74 total, \$400 or \$40 equity & take over \$17.35 mo. pymts. 679-1324.

CHEVROLET, 1955 sedan, auto. trans., r/h, good tires, \$400. FR 5-3914.

PORSCHE, 1959, convt., \$1700. OS 6-8887.

DOD and NASA in Joint Sponsorship Of U.S. Space Park at N.Y. Fair

ALSO LOOK IN ON NORTHROP ARCHITECTURAL WORK

A don't miss suggestion for Norair people who will attend the New York World's Fair . . .

Visit the U. S. Space Park, jointly sponsored by the Department of Defense and the National Aeronautics and Space Administration.

Norair people have had a hand in the development, design, manufacture, and building of many

TIME TO PLAN BOWLING TEAMS

This is the time to start planning for winter league bowling teams.

The first week in September has been pegged as league launch time.

The houses will be the Tropicana, Del Mar, Missile, Gardena and Southwest.

Tom White, Personnel Activities, has all the planning information on type of play, rosters, times and dates, and cost.

Entry forms are available at Personnel Activities. Give them a call, extension 2486.

FOR SALE

WET SUIT, woman's size 16, jersey-lined neoprene, \$50. OR 4-6895.

REFRIGERATOR, Coldspot, \$100. OS 5-1057.

WANTED TO BUY

FORD, 1948, 2-dr. sedan or coupe. OS 5-7410.

FISH AQUARIUM. PL 7-7911.

RENTALS OFFERED

APT, unfurn., 1-bdrm., gar., laundry, Manhattan Beach, \$93.50 mo. FR 4-5935.

HOUSE, Hawthorne, 2-bdrm., children ok, trash & water pd., unfurn., \$110; furn., \$120 mo. 679-7584.

HOUSE, 3-bdrm., near Harbor & San Diego Fwys., \$110 mo. DA 9-2242.

CABIN, Crestline, near Lake Greary, sleeps 6, \$60 wk. EX 1-2040.

APT, 1-bdrm., unfurn., pvt. balcony, closed aar., \$95 mo. DA 0-4058, FR 5-0867.

APT, 1-bdrm., furn., near Inglewood, \$80 mo. OR 1-6080.

APT, single, completely furn., util. pd., Playa del Rey marina area, \$140 mo. EX 8-3840.

APTS, 3-bdrm., 1 1/2-bath, pvt. patios & aar., near Northrop, children ok, \$155-\$160 mo. OS 5-7938.

APT, bachelor, completely furn., \$55 mo. OS 6-2162, OS 9-7230.

APT, 2-bdrm., owner-unit, in 5-unit apt. house, 2 blks. to Norair, \$145 mo. OS 6-7417.

DUPLEX, 2-bdrm., aar., water pd. unfurn., adults, \$110 mo. PL 4-1964.

APT, furn., single, util. pd., near Northrop, \$70. OR 3-2450.

APT, 2-bdrm., unfurn., built-ins, disp., birch cabinets, carport \$95 mo. 320-2827.

HOUSE, 1-bdrm., Inglewood, service porch, water & aarbaae pd., \$85 mo. DA 3-4116.

APT, 1-bdrm., cus. decorated sub. parking, pvt. deck & pool, \$97.50. 373-1143.

PERSONAL

WE WISH to thank the Mariposa gang for participation in the "Sunshine Box" for our daughter, Billie Lou. It certainly was appropriately named as it made one little girl very happy. BILL & MARY LOU NELSON.

THANKS to all Northrop friends during a recent period of need, for expressions of sympathy & understanding. KENNETH L. ROBERTS.

MANY THANKS to our Northrop friends for their sympathies over the loss of our beloved husband & stepfather, Leonard C. Smith (Smittie). GEORGE SMITH & SHIRLEY CLARK.

FOR SALE OR TRADE

WASHER-DRYER, comb., aas, \$125 or trade for trans. car or truck. FR 8-3990.

RANGE, Wedgewood chrome top, grill, broiler & oven, \$100 or trade for refrigerator, 10 cu. ft. OR 1-8106.

of the products on display there.

A major feature of the New York World's Fair, the United States Space Park includes, among other space-age hardware, the Aurora 7 that carried Astronaut Scott Carpenter on the second U.S. manned orbital flight.

The two-acre, outdoor exhibit in the southwest corner of the fair grounds is located between gates 2 and 3 near the Hall of Science.

The Space Park is co-sponsored by the National Aeronautics and Space Administration, the Department of Defense, and the World's Fair. It includes the most imposing array of full-scale U.S. rockets and spacecraft ever assembled outside of Cape Kennedy, Florida.

Highlighting the park is a full-scale "boattail" or propulsion section of the massive Saturn V rocket which will send American astronauts to the moon. The model stands 52 feet tall, measures 33 feet in diameter, and is the bottom section of the 282-foot tall Saturn.

Among the spacecraft shown are the TIROS and Nimbus weather satellites; Syncom, Telstar, Relay and Echo communications satellites; Explorers for near-earth space investigation; the orbiting observatories; Rangers and Surveyors for unmanned lunar exploration, and Mariner II, the world's first successful Venus probe. Also in the group are the Canadian-built Alouette, the British Ariel I, and Discoverer XIV, the first satellite recovered from orbit by aircraft when it re-entered the earth's atmosphere.

Towering over the two-acre exhibit is a Titan II-Gemini

launch vehicle and its two-man spacecraft. The Titan II booster, 110 feet high, stands with the Gemini capsule attached on top just as it will be on the launch pad at Cape Kennedy.

Surrounding the Titan II-Gemini are full-scale models of the Apollo Command and Service Modules which will carry American astronauts to the moon, the Lunar Excursion Module, and two-man Gemini spacecraft.

Other full-scale exhibits in the Park are the Atlas-Mercury and Thor Delta rockets, an X-15 rocket-powered research aircraft and the Agena rocket.

A biosatellite spacecraft illustrates future space missions to explore the effects of the space environment on animal and plant tissues.

In addition to Northrop's part in the foregoing Company visitors should also observe with pride Northrop Architectural Systems' contribution to the beautiful buildings that make the Fair a most exotic and pleasurable experience.

The House of Good Taste comprising the Edward Stone, Jack Coble, and Royal Barry Wills houses have Northrop Architectural Systems sliding doors. Other edifices that have exterior NAS construction components are the Equitable Life Assurance building, sliding doors; RCA Color TV building, sliding doors; Masonic Center building, store front and entrance door; Missouri pavilion, sliding doors; Pavilion of American Interiors, sliding doors; Swiss pavilion, entrance door; and the New York State pavilion observation tower, sliding doors, store front and entrance.

NRC Square Jets to Toss Excitor Dance-August 24

The Square Dance Club, Commissioner Richard Heise, will put on an "excitor" dance, August 24 at Hill Rancho, 15701 Crenshaw in Gardena for the avowed purpose of bringing those people into the Club who have always wanted to square dance but have never found the right opportunity.

"This will be a special dance," says Dick. "A get acquainted

affair. We are going to have demonstrations by experienced squares from the Square Jets. With our fall beginner's class set to get under way September 14 and every Friday night thereafter, we hope to make 1964-'65 season the best in NRC square dance history."

There will be a charge of 25 cents a person. Refreshments will be served. All Northrop employees and their friends are invited.

BOWLERS DANCE, HAIL OLD, NEW KEG SEASONS

Farewell and hello.

The Northrop Recreation Club Bowling Club announces that there will be an "Aloha" Bowling Ball (dance) to be held Saturday, August 22, at the NRC Club-house.

The event will bid adieu to the summer season and extend greetings to upcoming winter activity in this busiest of all Norair sports programs.

The time is 9 p.m. to 1 a.m. and tickets are at \$1 a person.

You should wear Hawaiian dress or a reasonably facsimile thereof.

Music for dancing will be by the Gary Adams quartette.

There will be prizes and surprises.

NIGHT GOLFERS PLAN MONDAY MORNING PLAY

How would you like to play golf on Monday mornings?

This will certainly be possible, for night shift personnel, that is, it has been announced by Lou Lauzon, the man who looks after the needs for NRC night golfers.

A new league is being formed to this end that will tee off at Western Avenue.

For those who like the idea and who want to get their exercise over early in the week, entry forms are available at Personnel Activities, Plant One.

"Make your intentions known," says Lou. "We would like to fill the league as early as possible so we can get started."

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, August 26, 1964

HAWTHORNE

EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

Colonel Hozier in Generous Praise of T-38/F-5 Programs

Colonel George C. Hozier, for the past two years T-38/F-5 Project manager, Systems Program office, ASD, was recently promoted to the position of Deputy for Subsystems and Equipment Management, ASD at Wright-Patterson Air Force Base . . . The News, with pride, publishes excerpts from his letter to Company President Thomas V. Jones advising of the change.

Dear Mr. Jones:

. . . Northrop is to be congratulated, both on the T-38 record Air Training Command has achieved and the test results of the F-5 program to date.

This family of aircraft is the finest that I have had the pleasure to fly during my 22 years of rated service with the Air Force. The outstanding safety and utilization records which have been set by these aircraft are irrefutable proof of their design integrity, high quality, longevity and serviceability.

. . . I am sure that the fine Northrop performance which brought the T-38 and F-5 into production will continue and that there will be additional records to which you and all Northrop employees may point with pride. These programs and other company endeavors will be watched with interest.

My best wishes for continuing success are extended to you and all at Northrop.

Sincerely,
G. C. Hozier
Colonel, USAF

Larry Littrell Appointed Personnel Administrator

Larry Littrell, a near 14-year Norair man and former general supervisor, Employee Relations, has been appointed administrator, Personnel department, it has been announced by Thomas L. McCarthy, manager,

the positions of Industrial Relations representative at Mariposa, executive assistant to the director of Industrial Relations, and Industrial Relations chief, Northrop Space Laboratories.

His previous industrial experience includes that of safety engineer with Hartford Accident and Indemnity Company, and sales work with Sears Roebuck and Company.

Mr. Littrell was educated at the University of Southern California, receiving his bachelor degree, Industrial Relations major, in 1951.

He is presently studying law in evening courses at Southwestern University.

He is a member of the Beta Gamma Sigma, commerce honorary fraternity and of the Personnel and Industrial Relations Association and the Los Angeles Chamber of Commerce Personnel Managers Committee.

Mr. Littrell is a native of Salt Lake City.

He is married and he and wife Virginia have two children, Jim, 9, and Kathryn Lee, 3. They reside in Gardena.



LARRY LITRELL

Administration.

Mr. Littrell replaces Dave Stadler, Personnel head recently retired.

Mr. Stadler who guided personnel operations for the Division for the past 18 years was bid bon voyage by his many friends and coworkers at a best wishes cake-cutting ceremony last week and immediately left for Idaho. He and Mrs. Stadler plan to take up residence in Boise where—"the fishing and hunting are out of this world and the scenery is the grandest ever."

Mr. Littrell came to Northrop in early 1951 as a Personnel department clerk, night shift. Since then, he has successively moved up the promotion ladder, holding

F-5 Tour Feature

(See Page 3)

NORAIR PERFORMANCE BEATS PREDICTIONS FOR FISCAL YEAR

DICK HORNER GIVES "STATE OF AFFAIRS" REPORT

Speaking before the Northrop Norair Management Club at the August 14 dinner meeting, General Manager Dick Horner told a record attendance that the Division's fiscal year just completed, exceeded earlier predictions in both sales and profits.

"And we have been very busy in Washington," said Mr. Horner. "With the Department of Defense view that present strategic forces are adequate in missiles and bombers, the emphasis now moves to tactical weapons."

Labor Day Holiday—September 7

All Norair Division facilities will be closed Monday, September 7, in observance of Labor Day, a paid holiday, it has been announced.

All eligible personnel, not on leave of absence, will receive eight hours straight time pay for the day. All hourly-rated personnel who are on vacation will receive an extra day's pay to compensate for the Labor Day holiday.

Exempt and nonexempt salaried personnel on vacation will receive an extra day of vacation to compensate for the holiday.

DEADLINE FOR REGISTRATION—SEPTEMBER 10

Deadline to register for the fall general election is September 10.

Citizens who wish to register, but will not become eligible because of age or residence until sometime between those dates may register only between September 1 to 10.

To accommodate these registrants and others who may need to register because of change of address, name, or party, Personnel Activities has arranged for a deputy registrar to be available at that facility in Plant One on:

Tuesday, September 1, 11 a.m. to 1 p.m.

Wednesday, September 2, 3 to 5 p.m.

Thursday, September 3, 3 to 5 p.m.

Friday, September 4, 11 a.m. to 1 p.m.

Tuesday, September 8, 11 a.m. to 1 p.m.

Wednesday, September 9, 3 to 5 p.m.

Thursday, September 10, 11 a.m. to 1 p.m.

This is good for Norair Division.

"There is substantial interest on the part of our own Air Force in the F-5 fighter."

Supersonic F-5 fighters are now in production at Norair for aircraft replacement in selected allied nations under the Military Assistance Program.

The first class of 12 allied student pilots begins flight training in the F-5 at Williams Air Force Base on September 14.

The F-5 is intended for close support of ground troops, interception of enemy aircraft, attacks on communications and supply lines, and armed recon-

pointed general manager just five months ago, Mr. Horner gave a "state of affairs" report which included an overall assessment of progress, prospects for new contracts, and evaluation of military procurement directions. He reported that the Division Advisory Group of the Air Force Scientific Advisory Board has recently indorsed the X-21 program and that the necessary budget planning and work definition are now in process.

He also discussed the space capability importance of the NASA lifting body contracts and stated that the work promises to be expanded with consideration being given to the addition of rocket engines to the two vehicles.

Division possibilities for more subcontract work—added to that already in the shop for the Boeing Company—are first rate with the supersonic transport and the CX-HLS coming on strong.

Mr. Horner stressed that the Division must exert all effort to keep in the technology van and avoid tendencies to become passe as specialists in outmoded defense needs. He expressed optimism in outlook for the future and said that Norair's present business balance is excellent and stable while new opportunities arising are quite varied and flexible and present a remarkably good selection of programs that fit our technological talents and manufacturing know-how.

He cautioned that our backlog of firm business must be maintained at its present level or
(Continued on Page 2)

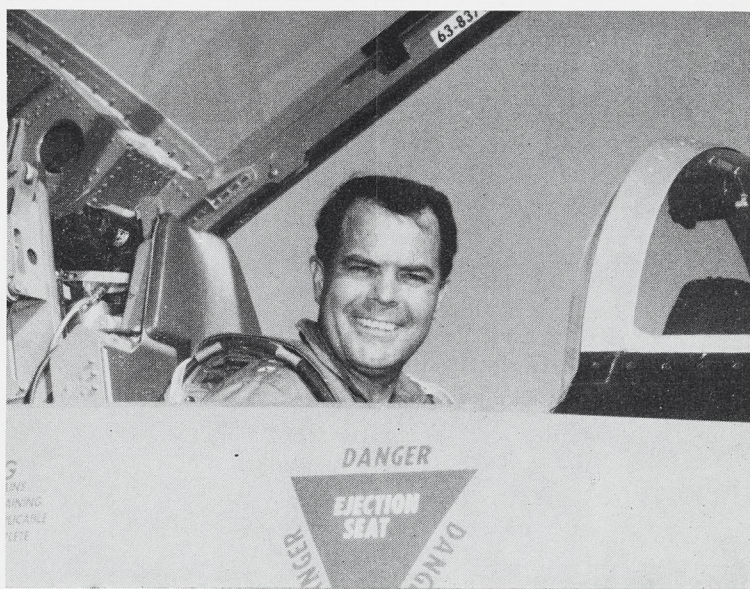


DICK HORNER

naissance missions over enemy territory.

"Norair is also very active in pursuing the Navy F-5 development—the N-285. The initiation of the program is expected within the next few weeks," Mr. Horner said.

Speaking before the Club for the first time since being ap-



FROM EDWARDS—Maj. General Eugene G. LeBailly, Air Force information chief at the Pentagon, likes his information firsthand. A World War II and Korea bomber pilot, he is shown after taking an F-5A supersonic jet fighter aloft on a familiarization flight at Edwards Air Force Base. General LeBailly flew back to Washington after touring the Air Force Flight Test Center and getting a briefing on its mission from Brigadier General Irving L. Branch, commander.—(Air Force Photo.)

GOING TO SCHOOL THIS FALL—? SO PLAN AHEAD

Intend to attend school this fall?

There are many advantages, says Larry Walton, administrator, Education and Training, not the least of which is keeping current with fast-moving space age developments. A little more knowledge might also help in climbing the promotion ladder. For certain, if the opportunity arises, the educated ones will be prepared to step forward.

If it is junior college, new procedures are in effect for the

coming semester. The student must obtain a "C" grade or higher to qualify for reimbursement of eligible costs. See Education and Training announcement dated August 12 for details.

A word about the educational refund plan. The procedures for qualifying for reimbursement of eligible costs incident to attending Norair approved courses at schools other than junior colleges has also been revised. Details are spelled out in Standard Practice Procedure 2-7.4 effective August 11. The principle changes involve a requirement for preregistration approval and the establishment of a basic grade of "C" in order to qualify for reimbursement. All personnel who are interested in continuing their education under this plan are invited to review Education and Training announcement of August 17, now appearing on bulletin boards.

Are you qualified for paid academic time off? Personnel working for advanced degrees, who have requirements to attend classes available only during normal working hours should submit their requests for paid academic time off. A revised Standard Practice Procedure describes this program and outlines the procedures which must be followed. In addition, it permits the establishment of a special academic work week for graduate study when required, and provides the procedures for requesting it.

For additional information about any of these programs, call Education and Training, extension 2437.

T-38 FATIGUE TEST COMPLETE, F-5 UNDERWAY

A major T-38 milestone was reached last week with the successful conclusion of the active test phase of the T-38 fatigue certification program.

A total of 30,000 simulated flight hours and 64,300 simulated landings were made.

Completion of the test demonstrates the long service life expected of the T-38A and precludes of any necessity for a costly depot or contractor structural overhaul program.

A similar fatigue test on the F-5 airplane is now under way.

Horner Address

(Continued from Page 1)

higher and that Division leadership be constantly alert to this responsibility.

He paid high tribute to the F-5 demonstration tour crew telling of splendid and noteworthy achievements. He cited in particular their dexterity in making an over night engine change in Riyadh, Saudi Arabia without benefit of normal ground handling equipment.

"The Saudi Arabians were accustomed to an airplane being in the hangar a number of days for maintenance of this magnitude. They were surprised, most agreeably so, that the F-5 was ready for checkout and more demonstration flights the very next morning."

The T-38 and the F-5 programs are on cost and on schedule, he said, and also reported that the 1965 fixed price buys have been negotiated for both.

Mr. Horner discussed at some length the defense procurement environment, calling attention to the continuous progression of new organizational relationships which seek to improve the management sciences and to upgrade the state of management art.

"The philosophies of these innovations are consistent in that the search is for improved management. However, there is also the difficulty where sometimes notoriety is the goal rather than real gain. Therefore, there is inclination in the minds of some to write this condition off as being faddish and to discredit because the accent is on the merit of improvement rather than on absolute performance.

"And it is easier to improve a bad performance than to improve an already adequate or good performance.

"However, the proper answer to ourselves as regards to this phenomenon is recognition that our efforts are never perfect. There is always room for improvement and in today's business environment we can little afford to miss any opportunity of enhancing either our image or our product," Mr. Horner concluded.

NORTHROP NORAIR NEWS

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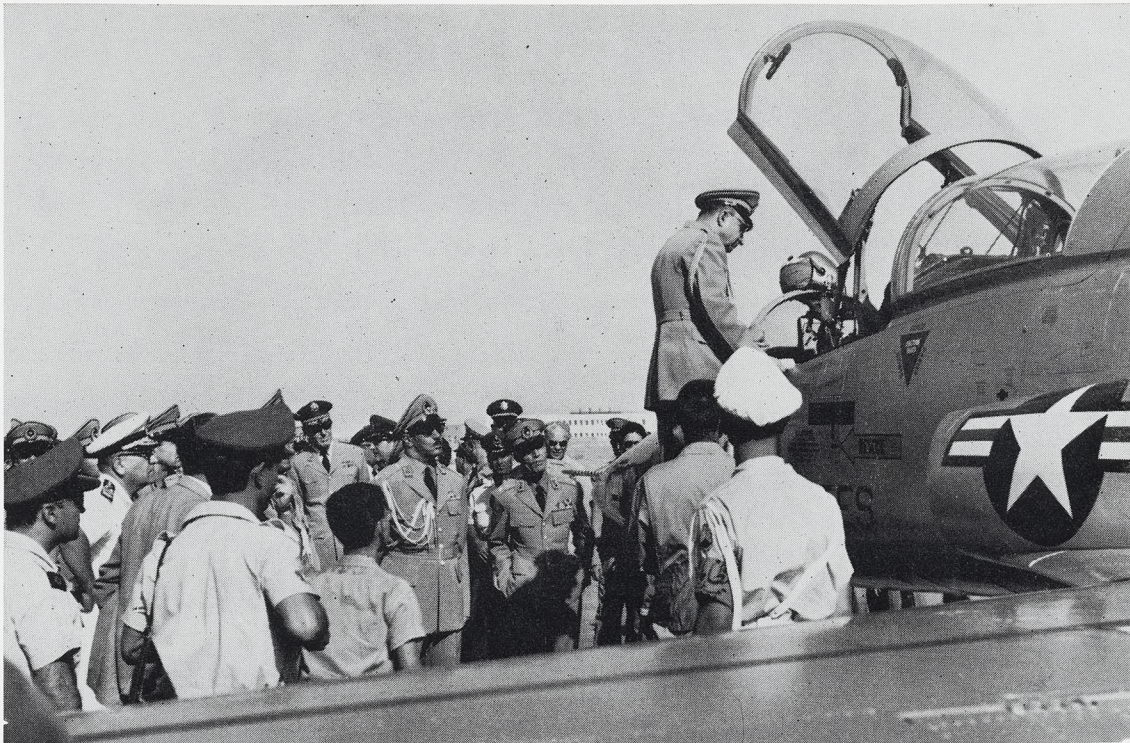
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CHARLES BRADFORD, Editor

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MEN OF IRAN—Top military officials of Iran study the F-5 fighter at Teheran.

COST-OF-LIVING RAISE DUE FOR HOURLY PAID

There will be an upward cost-of-living adjustment of one cent an hour in the rates of all Norair hourly paid personnel, effective retroactive to August 3, it has been announced by Division General Manager Dick Horner.

This follows the latest Bureau of Labor Statistics C-O-L index, up 0.5 points from the March reading.

The next reading will occur on September 15, 1964. Any change at this point will be effective November 2.

NORTHROP MEN APPOINTED TO AAS POSITIONS

Dr. C. Ming Wong, Norair Division, has been appointed chairman in charge of programs for the Los Angeles section of the American Astronautical Society posts.

Frank Pollard, Northrop Space Laboratories, has been appointed publicity chairman, contributing editor to the national publication, and editor of the Los Angeles section Newsletter. Robert Petrini, Northrop Space Laboratories, is membership chairman for the Inglewood and southern area.



AT TEHERAN—Norair's Captain Bob Elder, director, Flight Operations, right, at Teheran and Lt. General Mohammad Khatami, commander, Imperial Iranian Air Force, talk about the F-5 after a demonstration. "General Khatami—a superb pilot," stated Captain Elder. Flight took place at Mehrabad Airport.



ARABIAN PRINCE—General P. W. Timberlake, Corporation vice-president and head of Northrop International Division, and Saudi Arabian Minister of Defense and Aviation Prince Sultan Ibn Abdul Aziz, brother of Prince Faisal, watch intently as F-5 roars through demonstration.

The Pilots Say—

COMMENTS FROM SAUDI ARABIA AND IRAN

"... Nice cockpit layout and visibility. Can't beat twin engine reliability."

"... Good aircraft. Starts fast and climbs fast. Not hard to fly. Touch and go landing with one engine easy. I say it is a good aircraft."

"... The aircraft generally very stable and maneuverable and I certainly enjoyed the whole trip. Thanks for Northrop and all the whole team that brought this bird to Saudi Arabia."

"... I enjoyed my flight very much. Am sure that my officers will too. I hope I shall have them (F-5s) in the squadrons very soon."

"... A wonderful flight. I was impressed with the smoothness, ease of handling and climb capability. The low altitude speed performance is very desirable for this country. Twin reliability and single engine performance will be a great asset."

"... I really enjoyed the ride. Wonderful bird. Performance marvelous. I hope we can fly this beautiful bird as soon as possible. After this ride I think I hate to fly with any other aircraft. My best wishes to all F-5 personnel and I hope you will help to make the flying life easier to all people in the world."

"... I enjoyed the flight. Wonderful aircraft. I wish we could get the F-5 as soon as possible. I wish best luck for all F-5 people."

"... Finest and most fantastic airplane ever flown."

"... I hope to fly this nice bird again."

"... A beautiful flying aircraft. The performance charts speak for themselves but it takes a flight to adequately demonstrate the ease of handling."

"... A wonderful ride. Best ever during twelve years flying. Best luck to all F-5 people."

"... Everything is perfect on this plane."

"... It was great flying the F-5."

"... I hope to fly this fantastic bird again."

Lawrence of Arabia Country



ON THE LINE AT RIYADH—F-5B following flight demonstrations at Riyadh, Saudi Arabia. It was here that engine change was made over night and without benefit of proper ground handling equipment. When airplane was ready at dawn, it went aloft and signalled waiting pilots via sonic boom. Heat in this country reaches 137 in the shade. Tour team reported 118 degrees at 5:30 a.m.

F-5 Tour Team Finds Allied Pilots Eager—Want Fighter Right Now

Having received special permission through the good offices of the interpreter, the F-5B N-8008 gently and with respect dropped an early morning sonic boom on the city of Riyadh. And the waiting Saudi Arabian pilots were advised that the airplane was on hand and ready to demonstrate.

Special permission was certainly needed. Sonic booms are

the F-5's journey to date. He pays unqualified high praise to the spirit and enthusiasm of the crew. He voiced admiration for allied jet flyers and maintenance men in the countries visited; gratitude to those Americans on USAF duty in those far outposts; and a debt to personnel of the Arabian American Oil Company; and heartfelt thanks to Uncle Sam's diplomatic corps.

By Aerospace Reporter

notoriously unselective. This one would not only awaken the RSAF pilots wherever quartered in the town, it must also as a geographic certainty hit the royal palace nearby.

From the New World to the Old World to an even older world. Names of places that conjure wonderful storybook memories in the minds of all Americans. Norway—the land of the Vikings, and Spain, conquistadores. Nations from whence our forefather explorers came westward. Germany and castles on the Rhine. The low countries, Holland and Belgium. Athens. Asia Minor, the birthplace of civilization. Damascus. Lawrence of Arabia. The Barbary Coast. Sinbad. Aladdin. The Gates of Hercules. Jason and the Golden Fleece. Marco Polo. Kublai Khan.

The F-5 demonstration tour led by Norair's Dan Darnell, manager, Customer Relations, with his crew of 14 men from this division plus support talents from throughout the entire Corporation, also General Electric, continues to accumulate an exciting saga of team achievement as they put the supersonic fighter through its paces before the discerning eyes of MAP and other free world military establishments. Kings, princes, sultans, shahs, prime ministers, generals, general-pilots, and pilot-pilots, and people. Thousands of people.

Robert "Bob" Elder, director, Flight Operations, recently returned from as far east as the Persian Gulf, relates first hand some of the prideful moments of

"They joined us all the way," he stated. "They helped in a hundred ways.

"The hour was never too late, or the sun too hot, or the task too unpleasant. They were at our side with help, actual physical help, advice, good offices, smoothing the way. And of course when things were good, they shared our joy and raised cheer for cheer with us as the fighter performed so magnificently.

"And they were a part of our sadness too," he said, "when we lost Don and Major Guzman in Spain. This helped us continue on after that tragedy. They felt the blow as deeply as we did. But they didn't let us down. We couldn't let them down.

"We all know that Don would have been pleased that we kept going. He would have been doubly pleased at the success of the mission."

Bob Elder, a captain in the United States Navy before coming to Northrop and with long time experience in fighter squadrons, flight test, tactical test, experimental, and intimately familiar with the moods and behavior of all "beasts" from the P-40 on down, is adept in supplying the color that makes the story of the F-5 tour come to life in startling clarity and with feeling.

He recalls with a pilot's eye the European interludes, the spick-and-span cities, the patchwork countryside from 30,000 feet altitude. And there was the flying apprehension at inadvertently "straying" across cur-

tained borders with Northrop becoming a central character in an "international incident."

He speaks of pipeline navigation. "Flying aids are few and far between once you cross into the Far East. From Beirut to Dhahran—2 hours and 15 minutes flying time, the Arabian American "Big Inch" leads the way, straight as a string into the desert. From high altitude it is an awe inspiring sight and a comforting one."

He spoke of the weather.

At 5:30 a.m., start of the normal working day, 118 degrees hot. And at midday 137 was common and accepted.

The case of the sonic boom was brought about by a heroic feat. When an engine change became necessary in Riyadh, the Saudi Arabian authorities naturally thought the airplane would be hangar bound for several days.

The crew fell to and with the help of Arabian mechanics the job was completed overnight—and without regular ground handling equipment. Only a forklift. Lights to work by, courtesy of military trucks covered wagon style around the hardstand.

With the airplane ready, an early morning start for the flights and demonstrations was possible. And an early morning start meant that faith and schedule could be kept with other nations waiting their turn to fly the fighter.

"There was no other way to mass communicate that we were all set. The sonic boom did the trick. In fact it made a 'hit'."

And now and then camels on the runway. Much the same as our own jackrabbits here at Hawthorne Field, only bigger. Look-out!

He tells of a "near miss" for schedules and planning when a link in the nosewheel system gave way with no spare nearby. An Italian machinist stationed "somewhere east of Suez" worked through the night to "manufacture" a new one.

There was an uneasy moment when in crossing borders on the way to Saudi Arabia, the team's

DC-4 maintenance airplane, in spite of prearranged plans to proceed straight through, was ordered to land at Damascus. "John Fritz and I were in the F-5 and luckily they didn't make us come down. Minimum facilities there. Supersonic fighter facilities, nonexistent. We thought we had lost our crew and super cargoes, but they made out. Paid the over-flight charge and landing charge.

"Thanks to Mr. Jim Ennis, commercial air attache in that part of the world, their problem was quickly solved. They joined us a few hours later at the next 'pit' stop. None the worse for wear. Anxiety only. The aircraft didn't seem to notice."

Working back west from Teheran the hard working crew was ordered into a five-day rest at Athens. The order coming direct from Company President and Chairman Thomas V. Jones.

Presently, the F-5 is in Naples, Italy.

In recalling trip highlights, Mr. Elder was impressed by the enthusiasm of their hosts in the various countries.

"Almost always, and particularly so in the Near East, the jet fighter pilots didn't want to let the F-5 go. Wanted to keep the airplane as their own, right then and there. They joined with our boys at every opportunity in fueling and checkout work and they demonstrated remarkable skill and devotion to duty. To them as with us, the F-5 is a jewel. This fighter will be in good and loving hands."

Hotels? Clean, adequate, but expensive.

Ground transport? Taxicabs. With Arabian drivers living up to advance publicity as per the tourist guidebooks.

F-5 tour team regulars are made up of Mr. Darnell, George Sterling, Mr. Elder who was also a pilot; pilots Jim Johnson, John Fritz, and John Januleski; Scotty Johnson, Denny Wilson, Ed Zimmerman, Orbie Blair, Bob Purcell, Stan Gorowski, Floyd Mason, and Jim Heffernan of General Electric. Northrop International Division men on the

tour are P. W. Timberlake, Corporate vice-president and head of the Division; Geoffrey Parsons, vice-president and manager, Europe; Sherman Pruitt, Walt Byers, Jim Holcombe, and Les Daly, Public Relations. Photographer is Bill Cox, Corporate Public Relations.

Tour log began at Chateauroux, France where the initial F-5B N8005 was reassembled following transatlantic transport.

Following checkout in France, the airplane hopped to Rygge Air Base in Norway for flight demonstrations before government and military officials.

Norway is the first country to independently order the fighter into production for its weapon system inventory.

From Rygge, the airplane returned to Florennes Air Base in Belgium for more demonstrations, then to Brussels for the air show. Then to Eindhoven in the Netherlands, and to Wiesbaden, Germany for an Arabian preview. Then to Madrid, Spain where tragedy struck when Norair pilot Don Papish and Spanish Air Force Major Joaquin Perez de Guzman lost their lives on a low level demonstration pass.

F-5B N8005 had up to this time made a total of 53 demonstration flights for an average of five flights a day on demonstration days. As many as six flights were made on the better days.

In an around the clock effort back home, F-5 N8008 was made ready to continue the tour. It was also transported to Chateauroux for reassembly.

Its first stop was Dhahran, Saudi Arabia, then to Riyadh, then north to Teheran, Iran. Next to Athens, Greece. Then to Ankara, Turkey, and on to Naples.

At presstime, N8008 had made 84 flights.

The team expects to be home during the latter part of September. Under present schedule demonstration flights will have been carried out in over 13 countries.



AEROSPACE FAN—Comely miss at Florennes, Belgium, reads with interest about the airplane from America.



RIDES WANTED

7 a.m. — 3:45 p.m.

LA BREA & HYDE PARK BLVD., Inglewood. Geo. C. Goodenkauf, ext. 2625, 2173, OR 4-7743. A

NORMANDIE & 186TH, Gardena. J. M. Corum, DA 9-6848. A

CENTURY & VAN NESS, Los Angeles. Suzanne Garot, ext. 1513. A

PACIFIC & 20TH, San Pedro. William A. Bray, ext. 2200. A

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

T-BIRD, 1960, all power, w/s/w, r/h, leather interior, \$1700. 327-4519. A

AUTO TOWBAR w/brake control. V-type, \$35. 675-1031. A

SPORTS RACING CAR, H modified, Nardi w/Frua alum. body, Borrani wheels & T's, many spares & tow bar, \$1100. 714-673-7262. A

SURFBOARD, 9'6", \$40. FR 5-0061. A

TRAIL CYCLE, Honda, 55, \$275. OS 6-2162, OS 9-7230. A

CANON, 135 mm, f:3.5 lens, w/sun-shade, \$80. 671-9269. A

WIG, human hair, worn couple times, chestnut brown, \$50. 675-6020. A

MERCURY Woodie, 1948, new eng., top wood, mac. wheels, \$425. 377-3487. A

SURFBOARD, 9'1" Jacobs, 2 T band-strainer, trans. blue pigment, \$95. GA 4-7351. A

WASHER, GE automatic, \$50. 835-5052. A

FORD Fairlane, 1955 town sedan, stick shift, 4-dr., r/h. \$125. 676-2661. A

MGA, 1957 sports rdstr., good tires, top & side curtains, radio, \$800. GE 1-0614. A

BEDROOM SET, hardrock maple, 2 night stands, innerspring & mattress, \$180. 596-2155, 673-3401. A

REVOLVER, 4" Colt Python, target & custom grips, \$85. 671-1850. A

LAMP, Desert Aire McCall, \$20. AX 4-4325. A

PIPER Cherokee 160, auto flite, 40 hrs. S.M.O.H. new intr. & tires, 2 1/2 system, wheel fairings, at Hawthorne Airport, \$10,500. OS 5-9778. A

TABLE, mahogany, 4 chairs, \$35. ME 3-2395. A

BOAT, 17' Mandella utility, 60-70 mph, steel trailer, elec. brakes, w/Moon built Oldsmobile eng., \$1875; w/stock Oldsmobile eng., \$1450. NE 2-7610. A

MOTORCYCLE, Harley Davidson 1947, 61 OHV, \$300. FR 5-4574. A

REFRIGERATOR, Coldspot, \$15. OS 9-8620. A

HOUSE, 4-bdrm., 1 1/2-bath, family rm., 2 patios, fireplace, yard enclosed, near Del Amo shopping center, 6 1/2% 30-yr. loan w/10% dn., \$29,500. 324-2992. A

OLDSMOBILE 98, 1957, all power, new carb. & brakes, \$625 or offer. FR 5-2255. A

CABIN CRUISER, 21' 1960 Owens, 145-hp inboard, other equipment, dock space, will finance, \$2850. HE 5-6992. A

LOT, Lake Havasu City, Arizona, 80'x125', paved streets, util., near lake, \$2400. FR 7-5075. A

T-BIRD, 1957, \$1900. 672-8141. A

MAGAZINE, Scientific American, last 8 yrs., \$18. OS 6-2801. A

DIVING GEAR, twin 50 cu. ft. Voit tanks/back pack & many other access., 1-yr.-old, \$275. CI 1-7384. A

GUN, Win. mod. 70, cal. .270, K-4 sight, ammo. & reload dies, \$125. 378-1351. A

CHEVROLET, stick, 1955, new battery, \$290. DA 7-8412. A

FLOOR SCRUBBER & waxer, elec., \$20. 378-0094. A

BOOKS, 20 Britannica Yearbooks, 1945-1964, \$75. CR 4-2734, CR 4-3688. A

HOME, 3 blks. to Norair, 2-bdrm., large R-3 lot, carpeted, built-ins, fenced, patio, \$19,500. OS 9-6982. A

TABLES, solid birch step-type, Salem finish, pr., \$35. 329-1565. A

HEATHKIT SB-10 sideband adapter, never used, \$65. 672-6056. A

FOR SALE

RIFLE, Remington, model 700, 30-06, case, 2 boxes shells, \$90. 370-4444. A

ALFA Romeo, 1962 1300 Spyder, radio, seat belts, \$1700. 635-3784. A

AIR CONDITIONER, Fedders weather bureau, 115-volt, \$70. OS 6-1018. A

DESK, 60"x21", walnut, modern, office-size, 6-dwr., \$50. OS 5-6792. A

RANGE, Friaidre custom deluxe elec., fully automatic, white, \$225. 378-5494. A

HOUSE, Bellflower, 3-bdrm., 1 1/2-bath, fireplace, block wall fence, patio, elec. built-ins, corner lot, detached garage, \$24,750. WA 5-1312. A

WASHING MACHINE, wringer-type, Kenmore, \$35. 672-5578. A

FORD, 1953, 1-owner, good trans., \$75. FR 2-8572. A

CHEVROLET, 1956 conv., eng. o/hauled, new brakes, battery & ignition system, good tires & top, \$400. 398-1458. A

BICYCLE, boy's 26" Derailleur, special mt'n. gears, removable fenders & chain guard, \$40. 375-7038. A

FORD Galaxie, 1959, white w/red int., new V-8 eng. & w/w tires, \$825 or best offer. 323-6004. A

SOFA, 8' provincial gold & matching platform rocker, \$125. 429-3905. A

VOLKSWAGEN 1200 sedan, 1964, 2500 mi., \$1798. DA 4-8618. A

SLOT RACER layout, 1/32 scale, 3 lanes, 67 ft. start to finish, 3 4"x8" secs., \$50. AX 3-8374. A

GLENN MILLER collection, vol. 2, 5 LP, in golden edition, \$20. 379-1520. A

TRAILER, 28', 1959 Ideal, alum. awning, furn., full bath, \$2000. 676-2310. A

WANTED TO BUY

STATION WAGON, late model & in good condition. FR 9-4517. B

BICYCLE, girl's, 26", 3-spd. FR 8-6773. B

TRAVEL TRAILER, 22'-24', self-contained, to \$3000. FA 1-0706. B

PONTIAC, 1956 Safari, station wagon, must have good body. DA 9-4286. B

RENTALS OFFERED

APT, 2-bdrm., owner-unit, in 5-unit apt. house, 2 blks. to Norair, \$145 mo. OS 6-7417. E

APT, 1-bdrm., cus. decorated, sub. parking, pvt. deck & pool, \$97.50. 373-1143. E

HOUSE, 2-bdrm., trees, encl. yd., Oct. 1, Lomita Pines, \$150. FR 7-1074. E

DUPLEX, front, 2-bdrm., unfurn., garage, water pd., 5 min. to Northrop, \$110 mo. PL 4-1964. E

LIMIT-ONE ITEM

CABIN, Crestline near Lake Gregory, sleeps 6, \$60 wk. EX 1-2040. E

APT, 1-bdrm., Inglewood, adults, \$95 mo. OR 7-7048. E

APT, 2-bdrm., furn., 4 short blks. to Northrop, carport, avail. Sept. 4, \$110 mo. TE 3-2512. E

HOUSE, 3-bdrm., 1 1/2-bath, near schools, Del Amo shopping, \$180. OR 0-5153. E

APT, 2-bdrm., children ok, near Northrop, gar., water & trash pd., \$95 mo. DA 9-0314. E

APT, deluxe, 1-bdrm., furn., maple, close to shopping center & Northrop, \$97.50 mo. PL 5-0630. E

HOUSE, partially furn., near Western & Redondo Beach Blvd. 2-car gar., 2-bdrm., avail. Sept. 1, \$130 mo. DA 9-2556. E

SLEEPING ROOM, bachelor's, util. paid, furn., pvt. bath & entrance, close to Northrop, \$45 mo. OS 6-7328. E

APT, 1-bdrm., deluxe, unfurn., walking distance from Northrop, water & trash pd., laundry, \$92.50 mo. OS 6-1678. E

HOUSE, 3-bdrm., Redondo, fenced yd., water & trash pd., pet & children ok, \$125 mo. 344-1140. E

APT, 1-bdrm., furn., in duplex, util. pd., \$90 mo. OS 5-6285, OS 6-2501. E

APT, 2-bdrm., 1 1/2-bath, 2-story, w/fireplace, space for washer & dryer, pvt. patio, carport, pool, avail. Sept. 1, \$130. 536-1772. E

PERSONALS

WE WISH to thank the NRC, people in Oran, 5210 & the Flying Wina Acacia for expressions of sympathy & understanding at a time when it was deeply appreciated. EMILY SKAFF & FAMILY. L

I WISH to thank everyone at Northrop & NRC for the plant delivered to my home while recuperating from a recent eye operation. CARL W. ANGELOTY. L

WOULD like name & phone number of dressmaker in this area. DA 4-0161. L

OUR THANKS & sincere appreciation to our many friends for the kindness expressed during the recent illness & loss of our husband and father, Robert F. Melaer. ILA, ROBIN & RANDY MELGER. L

FOR SALE OR TRADE

CHEVROLET, 1962 Impala 409, new eng., 4-spd. trans., dual quad., \$2100 or trade for Chevrolet, 327-hp w/4-spd. OS 6-0264. M

NRC BALLOTING SCHEDULE SET

Not only presidential elections but NRC commissioner elections are in order, so states Bob Van Allen, president, Northrop Recreation Club, as he issues the word for one and all to take note of the following balloting schedule.

Art, Thursday, September 17, Plant Three annex.

Camera, Tuesday, September

Now is Time To Arrange For Bowling

The time is now to start planning teams for the winter bowling leagues, says Bill Myerson, NRC Bowling Club commissioner.

The league structure is being set up to take care of all bowlers in the Company with sessions to be scheduled at bowling establishments appropriately located in the southwestern area.

List of the leagues being blueprinted for this winter follows.

Day shift:

Monday, 6:15, Tropicana, mixed 5 handicap, approximately 750.

Tuesday, 6:25, Missile, men's scratch classic, 865.

Tuesday, 6:20, Del Mar, mixed 765 approximately, scratch.

Wednesday, 6:25, Tropicana, men's 825 scratch.

Wednesday, 6:15, Missile, mixed 5 handicap, maximum 760.

Thursday, 4:30, Del Mar, men's 485 scratch trio.

Thursday, 6:15, Missile, mixed 5 handicap, 750 maximum.

Thursday, 6:25, Gardena, mixed 4, 650 scratch approximately.

Thursday, 6:30, Southwest, mixed 5 handicap.

Night shift:

Friday, 2 a.m., Southwest, 485 mixed trio.

Saturday, 1 a.m., Tropicana, 450 mixed trio.

Thursday, 1:30 a.m., Del Mar, 485 handicap trio.

NRC SAILING CLUB PLANS ISLAND CRUISE

The NRC Sailing Boat Club maintains there is nothing like a cruise under canvas for what ails you.

Many of the Club events take the form of racing and a fall schedule has now been formulated. Get your copy at Personnel Activities, states Bernie Bowen, commissioner.

However, the headline attraction right now is a Catalina cruise all set for the Labor Day weekend holiday. Three uninterrupted days of cruising the island.

The Club will charter a 48-foot catamaran, the Pisces, to carry non-boat owners and to generally provide day-sailing and cove hopping whenever and wherever.

First night of the cruise, Saturday, the Club will hold a steak-out at base of operation, Sandy Beach in Emerald Bay. This will be \$1 for each adult.

Sunday, the Club plans to cruise to Avalon for churchgoing and sightseeing.

Monday, they will do the things they missed on Saturday and Sunday so that nothing worth your sailing attention will be omitted.

22, Plant Three annex.

Camping, Wednesday, October 7, Clubhouse.

Chess, Friday, September 18, Plant Three annex.

Coin, Monday, September 14, Clubhouse.

Dancing, Thursday, October 1, Clubhouse.

Gem and Mineral, days, Wednesday, October 14, Clubhouse.

Gem and Mineral, nights, Wednesday, September 16, 12 noon, Clubhouse.

Hikers and Packers, Thursday, October 8, Clubhouse.

Knitting, Thursday, September 17, Roma's Knit Dashery, 7:30 p.m.

Model Airplane, Thursday, September 17, Clubhouse.

Quick Sketch, Saturday, September 12, Plant Three annex, 10 a.m.

Sailing, Tuesday, September 22, Clubhouse.

Sea Anglers, Tuesday, September 15, Clubhouse.

Ski, Tuesday, October 6, Clubhouse.

Skin Diving, Tuesday, September 15, Clubhouse.

Sports Car, Tuesday, October 13, Clubhouse.

Square Dancing, Friday, October 9, Hill's Rancho, 15701 South Crenshaw, 8:30 p.m.

Stamp, Monday, September 21, Clubhouse.

Surf Fishing, Tuesday, October 6, Clubhouse.

Symphonaires, Tuesday, September 15, Hawthorne High

School music room, 9 p.m.

Toastmasters, Thursday, September 17, Cockatoo, 6:30 p.m.

No proxy votes will be accepted.

NRC A-M GOLF FORMS LEAGUE AT WESTERN

The call is still out for night shift golfers to answer the roll for morning golf at Western Avenue golf course, so states Lou Lauzon, commissioner.

A new league is being formed for this express purpose and the club needs to know just who intends to take part.

Entry forms are available at Personnel Activities, Plant One. If more information is needed put in a call to Tom White, extension 2486.

DINNER DANCE MANAGEMENT CLUB-OCTOBER 3

Northrop Norair Management Club President Leo Sacks has announced that the annual dinner dance will take place October 3 at the Airport Marina Hotel Regency ballroom.

Entertainment scheduled includes Manny Harmon and his band, comedian Johnny O'Brien, vocalist Inga Neilsen, plus intermission music furnished by a four piece combo.

Rate for the evening which includes dinner and dancing will be \$6 a person.

Reservations will soon be in the mail.

Election meetings must be attended in person to make your ballot good.



GOLF HONOR—Norair has won the semi-annual perpetual golf trophy, shown in photo, for play between our Antelope Valley folk and Rocketdyne Edwards at Palmdale Desert Air Golf Course. Individual honors went to Hank Waklee, Norair tech rep, who turned in low gross with nine straight pars. Joe Leach, Rocketdyne and Chuck Smith, Norair tied for low net. A challenge has already been issued. Next match is tentatively set for November 22 at the Edwards Air Force Course.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, September 23, 1964

HAWTHORNE

EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

T-38s FOR ASTRONAUT TRAINING



SPACE VOYAGE READINESS—Astronaut Frank Borman is shown ready to put a Northrop T-38A Talon through its supersonic paces during evaluation of the aircraft for a training role in the manned space flight programs. The National Aeronautics and Space Administration has officially designated the 850-mph Talon as a space flight readiness trainer. Five T-38s, on loan from the U.S. Air Force, were delivered recently to the NASA Manned Spacecraft Center near Houston, Tex. NASA hopes to purchase 10 more T-38s from the Air Force.

NASA TAKES DELIVERY OF FIVE SHIPS, PLANS CALL FOR TEN MORE

The National Aeronautics and Space Administration has chosen the supersonic Northrop T-38 twin-jet Talon as a space flight readiness trainer for America's astronauts, it was announced last week.

Five of the sleek trainers, on loan from the U.S. Air Force, were delivered to the NASA Manned Spacecraft Center near Houston, Texas, during May, June and July. NASA hopes to purchase 10 more Talons.

The high performance Talons, manufactured by Norair Division at Hawthorne and flight tested at Palmdale and Edwards, will be used by the astronauts as space flight readiness trainers in the manned space flight programs. The T-38s will replace F-102 interceptors formerly used.

The 850-mph Talon has a specified range of 1127 statute miles but has achieved 1492 miles. Powered by twin J85-5 turbojet engines, it can fly at altitudes to 55,000 feet. Its rate of climb—one of the world's fastest—exceeds 30,000 feet per minute at sea level. In February, 1962, the Talon established four international time-to-climb records.

For the past three years, the T-38 has set new safety records for supersonic aircraft in the U.S. Air Force.

During 1963, T-38s averaged only 4.6 major accidents per 100,000 flight hours, the lowest accident rate for any operational U.S. supersonic jet aircraft. The T-38 was the first U.S. supersonic aircraft to complete an entire flight test program without a major accident.

More than 400 T-38s are in service, and orders to date total more than 600 aircraft.

Come to the Makahiki—NRC Annual Picnic, South Gate Park, Sunday

Comes fall, comes the annual NRC picnic for all Norair and Northrop Space Laboratories personnel.

And this time it's called the Makahiki which in Hawaiian means jamboree and which also establishes the theme of this year's giant get-together.

Wear Hawaiian dress when you come to South Gate Park, Sunday, September 27.

To make a day of it, says Bob

Van Allen, NRC president, you should arrive at 9 a.m. for this is when registration starts. And registration is important for the grand prize is scheduled to be a portable television, not to mention other prizes including two free weekends in Las Vegas, courtesy of the Travel Club.

To reach South Gate Park from Hawthorne take either Imperial Highway or Manchester Boulevard to Tweedy. Park ad-

dress is 4900 Southern Avenue, one block west of Atlantic.

Following registration and exchange of hellos as old acquaintances are renewed, official program gets under way with softball games from 10 a.m. to 12:30 p.m.

As soon as the softball games are finished, there will be the exciting hula and sarong wrapping contests—from 12:30 to 1 p.m.

Next on the list, from 1 p.m. to 2:30 will be a Hawaiian show to be put on by the NRC Travel Club.

From 2:30 to 4 p.m. there will be games for both children and adults.

From 4 to 5 p.m. the awarding of prizes will take place.

"You should pack a basket lunch," says President Van Allen, "and don't forget to wear your favorite Hawaiian garb."

There will be free coffee, punch, ice cream, sno cones, balloons for the kiddies and leis for all.

Plus clowns!

Word around the plant has it that many departmental organizations are planning the Makahiki as the perfect opportunity to get employee families together for a group outing.

Directional maps are available at Personnel Activities.

Once more the date, Sunday, September 27, from 10 a.m. to 5 p.m.

Norair Men to Head SAE Diffusion Bonding Panel

Norair Division men will fulfill a prominent role in SAE's forthcoming Aeronautic and Space Engineering and Manufacturing meeting to be held at the Ambassador Hotel, October 5 to 9, it is reported by C. W. Eyres, assistant to the vice-president and assistant general manager, Technical, a member of the Program Planning committee.

Leading the Norair participation team is Jack Mannion, manager, Manufacturing Materiel, who is a member of the meeting's Manufacturing forum-Executive committee.

P. A. Jacobs, manager, Experimental Operations, Northrop Ventura, is also a member of the Manufacturing forum-Executive committee.

Diffusion bonding an upcoming industrial art and a headline meeting topic in view of the

steadily mounting performance demands of spacecraft and supersonic transport vehicles, will be discussed at a panel session organized by Mr. Mannion and to be chaired by Barney Gaiennie, administrator, Manufacturing Research and Development. Secretary is A. F. Eskelin and panel member is J. L. Hill, both senior research engineers, Manufacturing Research and Development.

Presentation will be Tuesday, October 6 at 2 p.m. in the Colonial room.

On Monday, first day of the meeting at 9 a.m., W. A. Whitman, Norair director, Manufacturing Program Planning, will participate in cost reduction talks. His subject is entitled "Meshing All Cost Reduction Efforts."

On Thursday, October 8 at 9 a.m. in the East Venetian room, (Continued on Page 3)

Brown-Root/Northrop Team Selected for NASA Support

Northrop Corporation in joint venture with Brown and Root of Houston, Texas, has been selected by the National Aeronautics and Space Administration for negotiation of a contract to provide operational and support services at the Manned Spacecraft Center, Houston, it has been announced by Roy P. Jackson, vice-president and assistant general manager, NSL.

The Brown and Root/Northrop proposal, one of 11 received by NASA in the competition, will be a one-year, cost-plus-award-fee contract with the possibility of options extending the work for two additional years.

Cost for the first year is estimated by NASA at approxi-

mately \$2.5 million. NASA has estimated the total cost requirements for the three-year period at approximately \$10 million.

Mr. Jackson stated, "Brown and Root is one of the nation's outstanding engineering and construction firms. We are most fortunate in having such a strong and able associate on this program."

"Mr. Harry Hutchins of Brown and Root will be program manager. Mr. Louis Brennwald of Northrop Space Laboratories will be assistant manager."

The Northrop portion of the proposal was prepared by NSL.

"Indicative of the importance of this project to the national (Continued on Page 5)

Fellers Named Director for New Product Development

The establishment of the New Product Development section in Norair Technical and the appointment of W. E. Fellers as director has been announced by Welko Gasich, Division vice-president and assistant general manager.

The section will report direct

to Mr. Gasich and will be composed of a small number of highly qualified engineering and scientific personnel who will investigate the application of technology to new product areas and new customers.

Long Range Planning of which (Continued on Page 3)

Group Insurance— —Color it Savings

Recently I was discussing the Northrop group insurance provisions with Bill Waldon, Corporate administrator of Group Insurance. Bill made the point that our group insurance is like "money in the bank." He mentioned that this policy indeed represents about \$25,000 that each of us at Northrop has "in the bank" to take care of medical problems as they arise.

That item on the paycheck "Group Insurance," is just part of the story of the substantial amount of money at your disposal.

To identify your "bank account" and to become aware of the resources available, we must remember that every person who was on the payroll on the first

ray, accident, and major medical coverage. Even life insurance has been provided for them. If you are enrolled for these coverages, \$1.30 of the deduction on your paycheck is for the dependent coverage. Any deduction in excess of this amount is for additional employee life insurance above the \$5000 provided by the Company. I like to think of my own deduction as a time-payment plan toward sickness and hospitalization. No hospital or physician that I know of would enter into a plan whereby you or I could pay our medical bills, regardless of their size, at the rate of \$1.30 a week. In the rush of life we tend to overlook that our contribution is only a portion of the total cost, because

By John B. Clark

Norair Director, Industrial Relations

of the month after he had completed 30 days of service is entitled to the following Company-paid benefits: \$5000 life insurance, \$5000 accidental death, \$3400 hospitalization, \$600 for surgery and \$10,000 in major medical, as well as laboratory X-ray, medical expense and accident coverage which totals in excess of \$400. This certainly is a substantial "bank account."

Each of us naturally prays that the day will never arrive when it becomes necessary to utilize any one or all of these benefits. However, the benefit is yours without further cost to you because we recognize that Northrop Norair is equivalent to a city of some



7000 people, and the daily newspapers regularly bring to mind that tragedy is amongst us always.

Proper administration of group insurance requires the use of certain predetermined forms for withdrawal from your account. We use one for hospitalization and another for the doctor. There is another form used for itemizing prescriptions purchased at the local drug store (providing you have a \$100 deductible major medical claim). When you enter a hospital and you take these forms to the admitting desk, I am sure you realize that they work like a charm, as it is not necessary for any cash deposit because your group insurance is guaranteeing to the hospital that a majority of the bill will be paid by your group insurance.

Similar benefits have been provided for your dependents. They are insured for hospitalization, surgery, laboratory X-

the Company is paying the major portion of the cost of our dependent coverage.

We at Northrop are proud of this group insurance benefit program.

The one item of our total plan that has not been discussed is the coverage that we call "Long Term Disability." This benefit became effective in January 1963 and provides payment of, after six months of disability, 60 percent of your gross wage until you recover or reach age 65. Both hourly and salaried personnel are covered. I am sorry to report that there have been within the Northrop family illnesses severe enough to require the utilization of this benefit, but I know this benefit has been of great help to those unfortunate enough to require its use.

Group insurance is not designed to cover every medical charge but does pay the major portion of the costs. Surely we can all afford a few dollars out-of-pocket expense, with the security of knowing that when we are confronted with hospitalization, surgery or serious illness we have this insurance coverage.

To preserve our plan and to prevent additional premium increases and benefit restrictions, use your group insurance account as you would use your personal bank account. Bill Waldon pointed out that our "experience" determines the rates.

Bill also strongly recommended that personnel have to advise the Group Insurance office when there is a new addition to the family so coverage can be extended. When a single person marries he has to take the necessary action to insure his wife also. Such coverage is not automatic, so see Group Insurance if you have doubt in any way regarding coverage of your family.

It is equally important to effect changes in designation of a beneficiary when death has claimed a family member too.

A chart in your insurance booklet, page 6, reflects the schedule of amounts and the breakdown costs of contributory life insurance according to your salary bracket. Remember that life, accidental death and dismemberment coverage are in addition to the \$5000 life and \$5000 accidental death and dismemberment which are paid for by Northrop.

Automation, Automation—Helps Thinking Folk Learn New Skills

(Brothers Four please copy.)

Automation, so often viewed with apprehension as the prodigy of progress that bids fair to take over industry casting all good human beings out into the cold, is nonetheless being put to very beneficial use in the Education and Training branch.

Used to help prepare selected Norair personnel for shop certification, automation provides "programmed instruction" with courses being presented in both machine and paper format.

Norair Education and Training's programmed instruction is designed so that:

The student is given small amounts of information at one time.

When the student responds by doing something or answering a question, he is automatically shown or told if that response is correct. Normally, he does not continue until he has mastered all previous material.

The individual governs the time within liberal limits it takes him to complete the course. No pressures are set. The student is neither held back by others in the class nor does he have to keep up to an arbitrary rate of instruction. He learns at his own rate, a function of his own ability.

A very positive result of programmed instruction courses has

been the knowledge absorbed by the student versus the time taken to complete the material. Each trainee reaches about the same level of training with only total time being different. It is interesting to note that students usually go through programmed instruction courses faster than in conventional classes, saving both

By Robert Faulks
Programming Specialist

training time and money. For example, on record are savings in training time of from 15 percent to as much as 75 percent.

Certain programmed courses are designed for an audio-visual machine — a 35-mm projector tape recorder unit developed by Nortronics and now on the commercial market. Using this equipment, a programmed course is presented in the following fashion.

The trainee is seated at a workbench which has all the equipment needed to build an instructional assembly. The machine

is started and a recorded voice tells how to accomplish each step of the assembly and verifies how it will look by a color picture on the viewing screen. At the end of each instructional step, the tape recorder automatically stops allowing the student time to proceed.

Upon completion of each step, the student presses a control switch and the machine continues. Control over the rate of the instruction is always in the hands of the learner. The student alone sets the learning pace.

The practicability of such training is confirmed by the satisfactory way the graduates have performed in numerous areas of production.

Programmed instruction is not, however, confined just to skills training. The number of commercial courses run from meteorology to transistor theory; from mathematical programming to PERT. Presently being reviewed by the Technical department is analytic trigonometry and transistor theory.

Q and A On Savings Bonds

Question:

Is it necessary to keep my Savings Bonds in a safety deposit box?

Answer:

You certainly should keep Savings Bonds in a safe place, and a safety deposit box is ideal. If, despite your precautions, your bonds should be lost or destroyed, the Treasury will replace them. For this reason it is well to keep a list of your bonds, separate from the bonds themselves.

Question:

Recently I found two partially filled albums of Savings Stamps my children bought when they were in school. Are these worth anything?

Answer:

They certainly are; in fact, every cent paid for them. By adding the difference between their value and \$18.75, you can get a \$25 Series E Bond at your bank. Or, if you simply want cash, the stamps can be redeemed at the post office.

Question:

I own a \$1000 Series E Savings Bond and need some of this money in cash. Is there any way this can be done?

Answer:

Yes. Any Series E Bond of a denomination greater than \$25 maturity value can be redeemed in part with the remainder being reissued bearing the original issue date. However, the amount reissued must be equal to an authorized denomination of bond or multiple thereof. For example, you could obtain a \$500 bond, plus the current redemption value—in cash—of a \$500 bond.



AUTOMATED INSTRUCTION BY MACHINE — Robert H. Faulks, Education and Training programming specialist and designer of the automated instruction series, monitors a training course as it is being presented to Joan Lee, T-38/F-5 Electrical Subassembly. Such courses have shown a 50 per cent decrease in training time required, while still meeting valid training objectives. Five similar certification courses are now operational enabling automated instruction to become a reality for most of the electrical assembly and machine areas.



AUTOMATED CERTIFICATION—Paul Chapman, T-38/F-5 Wing and Aft Fuselage branch, constructs a project assembly following Education and Training's flip chart program. This is a standardized project which requires the use of all of the basic skills needed to do the job in production. This is just one of seven programmed structural assembly courses in operation at this time.

NORTHROP NORAIR NEWS

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NO. 15

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NORAIR DIVISION
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CHARLES BRADFORD, Editor

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Hinchliffe Co-chairman of A-F Subcontract Symposium

J. W. Hinchliffe, jr., Northrop Corporate director of Materiel, will be industry co-chairman of a joint Air Force Systems Command/Industry Subcontract Management symposium to be held

September 27 to 30 at New Orleans, Louisiana.

Mr. Hinchliffe will share leadership of the symposium with Colonel H. G. Macdonald, commander, Central Contract Management Region, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio.

Approximately 200 officers and executives will attend the symposium to discuss new Air Force procurement policies placing greater responsibilities on prime contractors in the management of subcontract programs.

In addition to Mr. Hinchliffe, Northrop will be represented at the symposium by Norair's E. C. Bennett, chief, Quality Control Engineering and W. E. Woolwine, manager, T-38/F-5A Program; and Robert Cooper, Northrop Space Laboratories director, Materiel.

New Product Development

(Continued from Page 1)

Mr. Fellers was formerly director will be integrated into Marketing's new Planning and Analysis group and will be headed by Harold Ort, chief. This activity will report to R. V. Schmidt, director, Planning and New Products Marketing section and will serve to further business developments along both contemporary and new product lines. Mr. Schmidt reports to C. R. Gates, manager, Marketing department.

In commenting on the changes, Mr. Gasich reiterated Division philosophy as stated in his recent Aerospace Reporter interview in the Northrop Norair News emphasizing that Division progress and the path to new products must be gauged by our ability in the technologies. "The New Product Development section will help in the materialization of this philosophy," Mr. Gasich said.

Mr. Gasich also stated that, "The environment and the view of the aerospace market is such that we must place ever increasing emphasis on our long range planning activities. The consolidation of Long Range Planning with Market Analysis will provide for increased continuity of our planning functions and their relationship to our capabilities and resources."

New Product Development section offices are on the fourth floor in the Engineering and Science center.

Planning and Analysis group, also in the Engineering and Science center is located in the Marketing area on the first floor.

Meeting

(Continued from Page 1)

Dr. C. Ming Wong, Norair chief Structures and Auxiliary Systems group, will present the paper "Design for Material Compatibility and Corrosion Control Problems Associated with Typical Storable Propellants."

Friday, October 9 at 2 p.m. in the East Venetian room, John Puerta, senior engineer, will be secretary at the Dynamic Analysis discussion.

Detailed programs for the meeting are available at the office of Mr. Eyres in the Engineering and Science center.

Banquet and reception will be held on Wednesday at 6:30 p.m. in the Ambassador's Embassy room. Principal speaker will be Dr. Brockway McMillan, under-secretary of the Air Force. His subject will be "Air Force in Space."

The Apollo luncheon will take place at 12:15 p.m. in the Coconut Grove at which Dr. Robert C. Seamans, jr., associate administrator, National Aeronautics and Space Administration, will speak on "Management Requirements for Space Exploration."

Registration desk, lobby floor, is open daily at 8 a.m.

Honors for Long Service



DIAMOND PINS FOR JULY AND AUGUST—Norair people who achieved 20 years service during the months of July and August meet in the board of directors room with General Manager Dick Horner for the traditional diamond pin presentation ceremonies. Shown seated for photograph from left, George Fowler, Corinne Davis, Mr. Horner, Arlene Hillstrom, and Ralph "Doc" Cook. Standing, from left, Harlan D. Hampton, C. W. Newton, Adrian Ouwerkerk, Jack Briggs, and Leo Grant. A total of 919 persons have received 20-year pins to date; 76 have been women.

NRC Clubs Combine to Stage "Graphics '64" Art Exhibit

If you are an artist or hopeful of being one, amateur or professional, now is the time to prepare for participation in the upcoming "Graphics '64" exhibit to be held in the Norair Product Display building, November 13, 14, and 15.

TROPICAL FISH FOLK ISSUE INVITATION

There are fishermen and there are fisherman. Some ply their interest with a hook, others use an aquarium.

In the latter category falls the NRC's night shift Tropical Fish Club, an enthusiastic group which welcomes one and all to join up and enjoy a very satisfying hobby.

Witness those exotic displays of beautiful fish in the well-appointed decorative schemes of today's better homes.

Tomorrow at noon, the NRC TFC is proud to announce that they will hold their second monthly meeting, Thursday, September 24. All devotees plus any who want to see what it is all about are invited to attend.

NRC Clubhouse is the place.

coming "Graphics '64" exhibit to be held in the Norair Product Display building, November 13, 14, and 15.

Being staged by the NRC Art Club, Quick Sketch Club and Camera Club, the show welcomes examples of commercial art, photography, typography, and layout.

Art Club and Quick Sketch Club members are eligible to submit five paintings in any media, plus three drawings and five pieces of sculpture.

Artists must have an attendance record of at least six sessions of their respective Club meetings for the period August 15 to November 1 this year.

Camera Club members are permitted four entries in each of three categories, black and white, color transparencies, and stereo slides. Eligibility requirement here is attendance of at least three consecutive Club meetings.

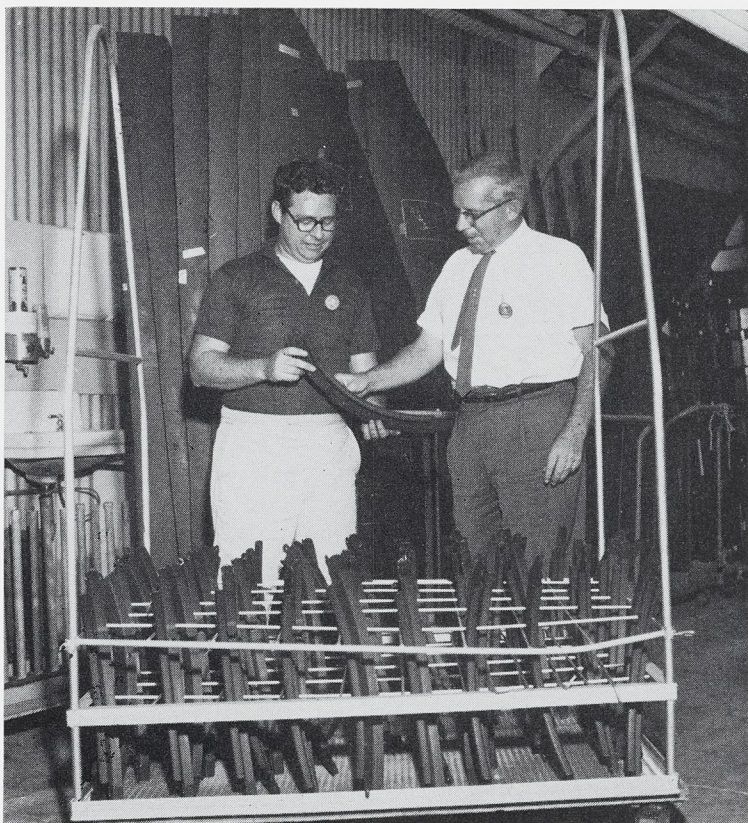
Entries are due Saturday, October 31.

For further information call Personnel Activities.

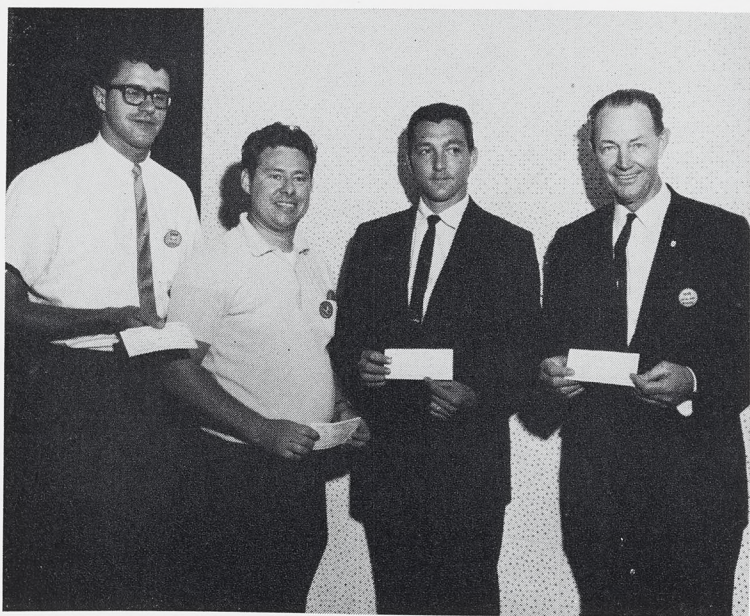
\$\$\$ Saving Ideas



CONGRATULATIONS — John B. Clark, Norair director, Industrial Relations, at right, congratulates supervision quartet for fine suggestion award showing by their work force. From left, Ray Staley, general foreman, 5513; Tom Lancaster, supervisor, 8833; Paul Hughes, supervisor, 5343; and Barney Elliott, foreman, 5510. Their organizations scored top money winners during past month with suggestions ranging from shop aids to material conservation. Mr. Clark is chairman of the Management Suggestion Award committee.



THERE IS ALWAYS A BETTER WAY—Here Mr. Elliott congratulates Darrel Rich for suggesting a special basket for chem mill parts to be used in Chem Mill and Hydraulics. Darrel received \$343 for the idea. Suggestion saved time, saved material, and improved quality.



PAYOFF—Cecil Callaway, Norair Suggestion Award coordinator, right, presents \$165 check to Russell Ely, 8833; \$343 to Darrel Rich, 5510; and \$327 to C. B. Pearson, 5343. He holds \$229 check to be presented to Robert C. Du Bois, 5513, absent on vacation. Suggestion awards play ever increasing part in Company's CMIP program.

COMPANY SCHOLARSHIPS FOR OUR SONS AND DAUGHTERS

AWARDS BASED ON STUDY APTITUDE, LEADERSHIP

Each year Northrop Corporation sponsors college scholarships for children of employees. The program is carried out in cooperation with the National Merit Scholarship Corporation, an independent, nonprofit organization whose major purposes are

... To discover, throughout the nation, our ablest young people and aid them in obtaining a college education.

... To enable business enterprises and other organizations to contribute more readily and more effectively to the support of higher education through scholarship grants.

The program is administered by the Northrop University Relations Advisory board. Chairman is Richard E. Horner, Corporate senior vice-president and Norair general manager. Executive secretary is Lee R. Thornton, Northrop university liaison, Northrop Space Laboratories, extension 2786.

Northrop scholars are chosen by the National Merit Scholarship Corporation on the basis of scholastic aptitude, leadership, and good citizenship as determined by testing and other procedures established by NMSC. The amount of each scholarship is based upon the individual winner's financial needs in order to attend the college of his or her choice.

Recognizing that the cost of educating a student often exceeds the amount of tuition and other fees charged, NMSC in most instances will make unrestricted grants to colleges and universities attended by the scholars.

ELIGIBILITY

All children, natural or legally adopted, of regular employees are eligible to compete for these scholarships. Both boys and girls are eligible. This includes children of domestic personnel of subsidiaries. Children of retired and deceased Company employees are also eligible.

All parts of the Corporation including its offices, divisions, departments, laboratories, and wholly-owned subsidiaries, are included in the program.

The 1964 scholarships were awarded to students who completed secondary school in 1964 and who are entering college in 1964. The 1965 scholarships will be awarded to students who will graduate from high school in 1965 and enter college in 1965. The awards will be made in the late spring of 1965. The same holds for future years.

During this past competition Northrop had five finalists competing for two available scholarships.

The following students are currently being sponsored under Northrop scholarships:

Jo Anne Armstrong, Occidental College, class of 1965.

Lynne Carmichael, Occidental College, class of 1965.

Eric B. Jensen, University of California, Berkeley, class of 1966.

Donna L. Daley, Wellesley, class of 1967.

Barry K. Rosen, Harvard, class of 1967.

Robert Campbell, Caltech, class of 1968.

Seth Alpert, University of California, Berkeley, 1968.

PARTICIPATION

Eligible students must take the National Merit Scholarship Qualifying Test when they are either second semester juniors or first semester seniors. This test is made available by the NMSC to high school principals throughout the United States.

Candidates should make test arrangements with their own high school principals during the fall semester of their junior year. The test is ordinarily given in high schools in March of each year.

QUALIFYING TEST

The qualifying test is for three hours. Emphasis is on understanding of, and ability to use

COPIES AVAILABLE

Extra copies of the scholarship story are available at the Northrop Norair News office.

Call the editor, extension 2456, with name, man number and organization.

what is learned, rather than on sheer knowledge of facts. The test itself is concerned with knowledge of words and English usage, ability in mathematics and quantitative thinking, and ability to read in the social sciences and natural sciences. The results of this test provide NMSC with a primary basis for selecting scholarship winners. The test does not require any special study or preparation. However, experience has shown that students who have done better than average work in their three preceding secondary school years generally get higher scores on the test.

Each semifinalist is asked to take another examination — the three-hour Scholastic Aptitude Test of the College Entrance Examination board, usually in December.

SELECTION OF WINNERS

The high scoring candidates will be told in January or February of the senior year that they have become finalists as a result of their test performance. Additional information will be requested of these finalists and their school authorities. Scholarship winners will be selected according to merit on a competitive basis and without regard to financial need.

Professional evaluation by an impartial committee of educators will determine the winners. Test scores, high school grades, character, qualities of leadership and citizenship, work habits and general range of interests are factors considered by the National Merit Scholarship Committee in its selection procedures. In most cases, winners will be notified of their awards about April 1 of the senior year.

DOLLAR VALUE

Each scholarship is a four-year award, and thus will cover the undergraduate years. It is made up of two separate grants—one to the student, called a stipend; the other to the college, called a

college grant. Both stipend and supplement are variable.

The stipend that each winner receives is dependent upon (1) the family financial circumstances and (2) the cost of attending the college selected. The process of determining the stipend amount is highly developed and is in widespread use by colleges in the dispensing of scholarship funds, as well as by the better-known private scholarship activities.

The stipend accompanying the Northrop scholarship will vary with the case between \$250 a year (minimum amount in cases where no financial help is necessary) to an upper limit of \$1500 a year.

The "need stipend" method was developed to use scarce scholarship dollars to help as many students as possible, but to give a winner such assistance as he actually requires to attend the college of his choice.

The student may ask for re-evaluation of his "need stipend" at any time during the life of the scholarship, since needs can change (i.e., changes in the family's finances, increased college costs, etc.). Thus, in a sense, the scholarship operates as an educational insurance policy.

In administering the scholarship and those of some 140 other organizations, NMSC follows the general practice of colleges and other organizations awarding scholarships, of requiring that winners not accept other additional major scholarship assistance. However, winners of Northrop scholarships may accept \$125 a year or a one-time \$500 academic prize, without affecting the stipend. These regulations are designed to support the general principal of setting award amounts according to need and tend to expand the available scholarship assistance to as many needy students as possible.

RESPONSIBILITIES

A winner is completely responsible for making arrangements with the accredited college of his choice, and for fulfilling its entrance requirements. A winner must enter college between January and October of the year in which he is awarded the scholarship.

A winner may pursue any course of study leading to one of the usual baccalaureate degrees.

A winner is expected to make normal progress from year to year, and to maintain a good standing in his college. While honor grades are not required, scholarship holders have a responsibility to do scholarship level college work.

In case of required military service or serious illness, the scholarship will be held for the winner.

WHO HANDLES

National Merit Scholarship Corporation conducts all phases of the competition, including the selection of winners, the determination of the amount of the awards to individual winners, and administers the scholarships while they are in force. The procedures that NMSC follows are widely endorsed by educators throughout the country.



HONORS FOR SETH — Here Dick Horner, Corporate senior vice-president and Norair general manager, makes presentation of merit scholarship award to Seth Alpert, son of Norair Marketing's Myer Alpert. From left are Lucile H. Crain, principal of Palos Verdes High School where Seth graduated, Mr. Alpert, Seth, and his mother Mrs. Alpert. Seth starts at Berkeley this month.



NOW IN EUROPE—Jo Anne Armstrong, young lady at the piano, a recipient of Northrop merit scholarship award in 1961, has been attending Occidental College and now as a part of the International Fellowship Program there, is attending the University of Kiel in Germany furthering her major in English literature. Her grade point so far is 3.95. Seated beside her at the piano is her father John Armstrong, Norair Design Integration. Standing are Mrs. Armstrong and brother John, jr.

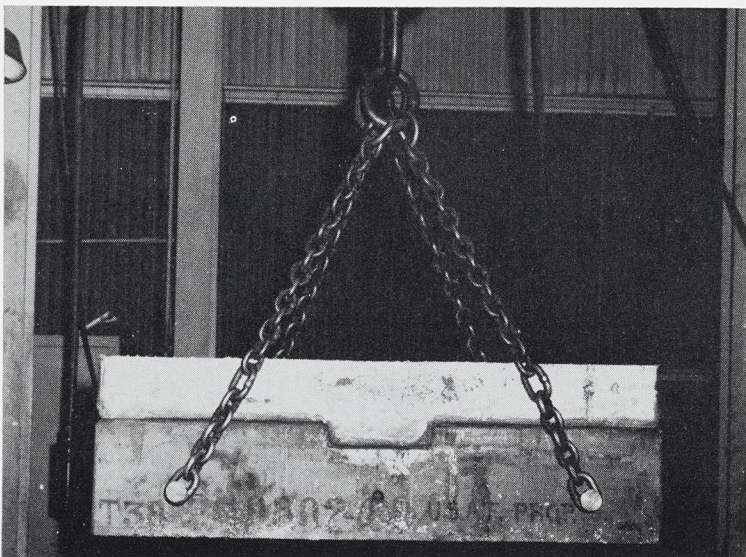


WILL GRADUATE NEXT JUNE — Lynne Carmichael, also 1961 recipient of a Northrop merit scholarship and an Occidental top student will graduate in June. Mr. Carmichael, seated, is engineering specialist in Norair Dynamics branch. Mrs. Carmichael, standing, is a former Northrop employee.

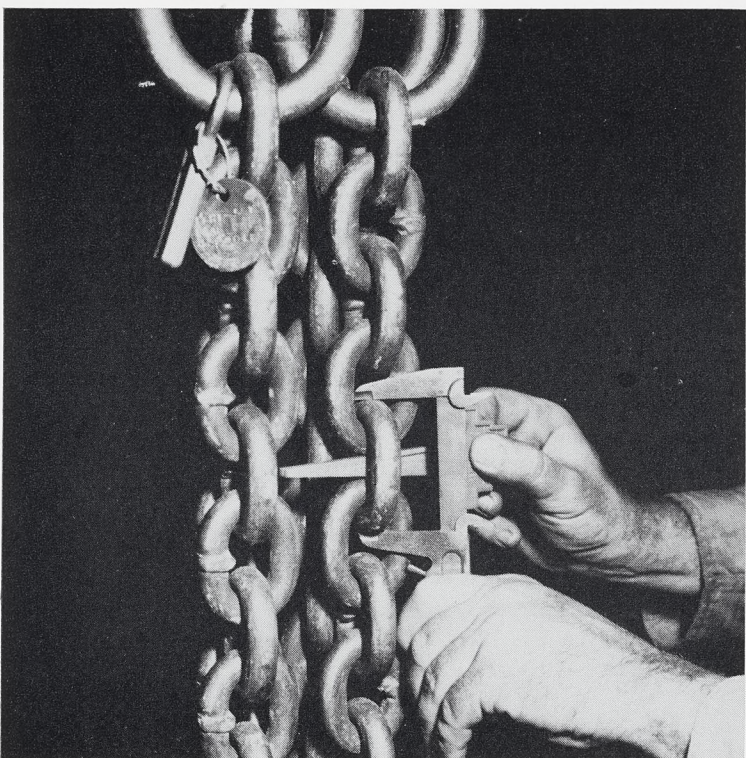
The Blue Ribbon Look



SLING SURVEY — Each year and on regular basis, Campbell Chain Company conducts sling chain survey at Norair Division, a free service provided in the interests of personnel safety and foolproof material handling. Photo shows Campbell men, Pete Homberg, territory manager, standing, and Malcolm Mangan, project engineer, measuring "legs" for equal length of sling in foundry, 5210.



BRUTE WEIGHT — And it takes brute strong equipment to handle it. Photo shows typical four-legged chain sling lifting hammer house die. Such pieces of equipment weigh up to 20,000 pounds and more. Hoists and chains for the job must be in first class condition. Norair's safety program is insurance that the job will be done right.



PRECISION SAFETY — Campbell men, assisted by Norair's Safety and Fire Prevention engineers go into the finer aspects of what's happening to all-important chain slings by precision caliper measurement of link elongation and wear. Survey and recommendations which are presented to the Company for action also contain know-how of lifting practices, reports on cracked or twisted links, gouging, other signs of failure. Service is a big assist to plant Blue Ribbon safety sweepstakes drive.

Norair Explorer Posts Again to Offer Career Guidance Programs

This is the second year that Norair's Aerospace Science and Engineering Explorer Post 173X and Industrial Management Post 172 will provide the time, the place, the equipment and the know-how, for high school junior and senior boys to take a first-

hand look at an aerospace career.

Norair Explorer posts bring together career-minded students and Norair specialists in fields of common interest.

Meetings already under way are held twice monthly in the evening and will continue throughout the year.

Included in the program are lectures and laboratory demonstrations covering the major areas of specialization in both operations and technical fields. Some of the specialties to be covered are the wind tunnel, gas lasers, computer technology, and ground effects machines and all phases of manufacturing as well as program scheduling, safety, flight test, product support, facilities design and construction.

There will also be field trips to various other aerospace industrial facilities.

To be eligible for Norair Ex-

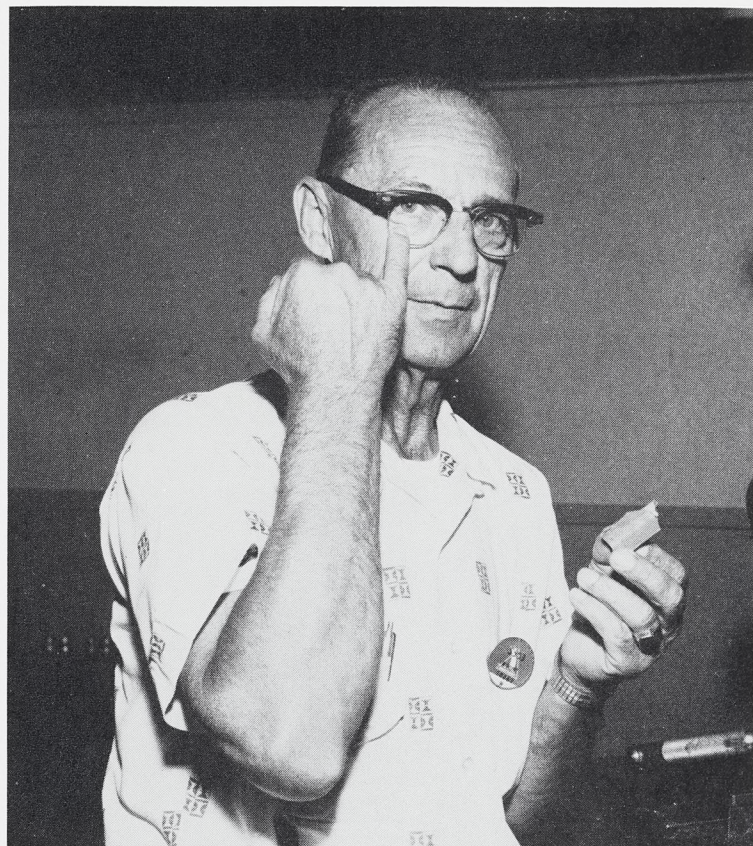
plomer posts, boys must be recommended by their school administrator. Boys do not have to be sons of Norair employees. School administrator's recommendation is necessary for admittance which is based on aptitude and a minimum grade average of B.

The call is out for Norair personnel both in technical and operational fields who would like to

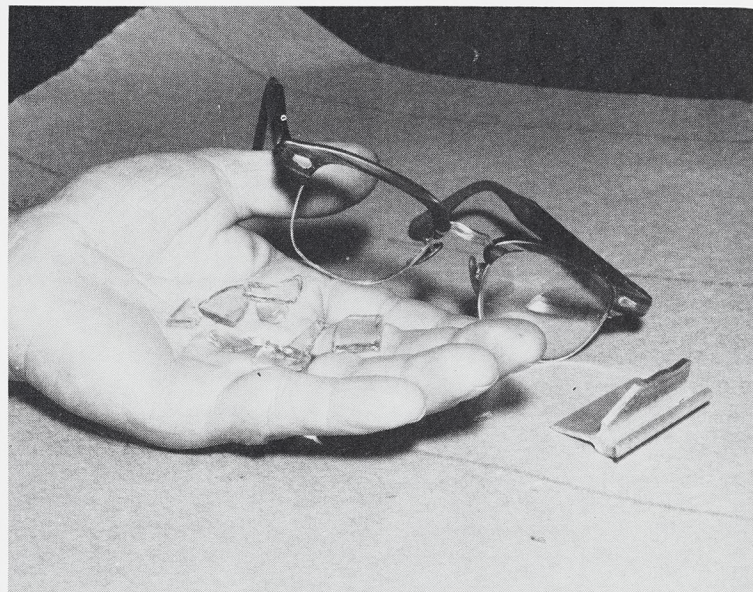
BUY BONDS

volunteer their services to help in this effort. For a rewarding year of youth guidance and assistance call Dick Pryor, general supervisor, Personnel Activities, extension 2486.

Norair Wise Owl



JOINS THE CLUB — Wise Owl Club, that is. Bob Hunt, Sheet Metal shop, indicates his good right eye that came near serious injury recently when a metal part let go during router operation and shattered the lens of his safety glasses. Bob's sight was not impaired, thanks to his observance of good safety rules.



CLOSE UP—Photo shows lens fragments, eyeglass frame from whence they came, and piece of broken extrusion that did the damage. Word to the wise is sufficient. Don't be a white cane candidate. Wear those safety glasses as per Safety Engineering instructions.



RIDES WANTED

7 a.m. — 3:45 p.m.

TORRANCE BLVD. & 208th, Torrance.
John Cable, ext. 2200, 320-2827. 2

8 a.m. — 4:45 p.m.

PARAMOUNT BLVD. & DEL AMO BLVD.,
Lakewood. Vernon L. Johnson, ext. 1545,
423-4421. 5GARFIELD & VALLEY BLVD., Alhambra.
Larry De Bejare, ext. 1226. 5VIA VAN NUYS, GLENDALE, BURBANK,
Sunland. Clyde Dobbins, ext. 738,
353-4770. 5LUITWELLER & ROSECRANS, La Mirada.
William A. Myers, ext. 1889, LA 1-4711. 5

3:45 P.M. to 12:15 A.M.

PACIFIC & RANDOLPH ST., Huntington
Park. R. W. Edwaras, ext. 1825, 2325,
LU 2-1347. 6

RIDES OFFERED

7 a.m. — 3:45 p.m.

SPRING & VALLEY VIEW, Buena Park.
Keith E. Flaudina, ext. 1310, TA 8-0746. 12

8 a.m.—4:45 p.m.

GARFIELD & VALLEY BLVD., Alhambra.
Larry De Bejare, ext. 1226. 15VIA VAN NUYS, GLENDALE, BURBANK,
Sunland. Clyde Dobbins, ext. 738,
353-4770. 15LUITWELLER & ROSECRANS, La Mirada.
William A. Myers, ext. 1889, LA 1-4711. 15

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

AMPLIFIER, hi-fi monaural. Heathkit mod. EA-3, 14 watts, \$20. PL 4-4384. A

RANGE, Kenmore, elec., \$25. OS 6-2162. A

FALCON, Ranchero, 1961, auto. trans., r/h, w/w, \$995. OR 1-8771. A

T-BIRD, 1960, all power, w/s/w, r/h, leather interior, \$1700. 327-4519. A

REFRIGERATOR, 10' Admiral dual temp. 56 lb. freezer. \$40. 672-8141. A

LAWN MOWER, reel-type, power, \$20. 672-5578. A

BABY BED, springs & mattress, \$15. FR 5-4574. A

MOTORCYCLE, 1956, 200 cc Villers, 4-spd., \$125. NE 2-7610. A

MAUSER, 8 mm, sporterized, \$42.50. 324-0579. A

EDGE TRIMMER, elec. w/50' ext. cord, \$18. 377-3105. A

METROPOLITAN, 1960, 30 mpa, \$525. TE 3-2512. A

COUCH, Danish modern, \$40. AX 4-4325. A

CABIN, Big Bear Lake, furn., sleeps 8, terms avail., \$8250. 714-539-6203. A

AIRPLANE, Luscombe 8E, all metal, 85-hp starter & gen., Narco omni radio, \$2150. FR 8-1443. A

TRAILER, 15 1/2' Aljoa, sleeps 5, elec. brakes, \$550. 376-2690. A

FORD, 1955 2-dr., 1958 ena., Hurst shift, \$500 or best offer. PL 4-2342. A

TV, Motorola 21", dark finish, approx. 5-yrs.-old, \$50. DA 7-0872. A

POOL, 18x48 Doughboy all alum. siding, steel braces, plastic liner, extras, \$125. 326-7417. A

ROLLAWAY BED, \$8. ME 3-2395. A

SHOTGUN, L. C. Smith, 12 ga., dbl. barrel w/2 sets of barrels, \$125. Box 1501. A

RANGE, gas, 27", 4-burner, white, Wellbilt, \$75. 675-2962. A

HONDA 55 Trail Cub, 1963, \$200. FR 9-1094. A

MOTOR, 1/3-hp bench-type, 90 day avar., \$7. TE 4-0362. A

PUPS, med. size, mixed, \$3. FR 1-8590. A

CABIN CRUISER, 18', fiberglass & wood, 30-hp Evinrude elec., trailer, extras, \$650. PL 4-5288. A

BICYCLE, boy's 26", \$12. PL 5-4497. A

SAILING BOARD, 13', glass o/plywood, 75 sq. ft., \$250. 430-7721. A

POOL TABLE, 8', 4 cues, extras, \$75. DA 3-5740. A

FOR SALE

STUDEBAKER sedan, 1954, good tires, new smog device, \$125. OS 5-6081. A

BOAT, 14' plywood, \$100. OS 6-9667. A

STATION WAGON, 1963 Rambler, classic 600, 6-cyl. r/h, auto., w/s/w, \$2195. 714-892-6317. A

POODLE, miniature, black, female, 4 1/2-mos.-old, \$50. 672-1687. A

GALAXIE 500, 1963 4-dr. h/top, r/h, p/b, p/s, \$2000. 897-6815. A

BOAT, 14' complete w/trailer & 3 1/2-hp motor, \$175. OS 6-5057. A

KARMANN GHIA, 1963, \$2195. 321-8939. A

WASHING MACHINE, auto., \$5. 675-9389. A

CHEVROLET, rebuilt 283 auto., r/h, w/s/w, \$600. 324-2934. A

BICYCLE, boy's Sting-Rae, \$35. 675-5234. A

STEREO SET, console, AM & FM on 2 sep. radios, 3 speakers, \$60. 676-9606. A

SHOTGUN, 16 ga., Ithaca, model 37, \$75. FR 2-3878. A

TRAIL SCOOTER, tote-goat-type, minus ena. & trans., \$55. FR 5-0747. A

RAMBLER, 1958, 4-dr., custom station wagon, 6-cyl., r/h, \$500. OS 6-0380. A

ACCORDION, man's, Universal, 120-bass, cost \$1585; \$300. FR 8-3448. A

LABRADOR retrievers, golden, 7-wks.-old. AKC reg., \$100. FR 1-5072. A

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FOR SALE

REFRIGERATOR, General Electric, 9 cu. ft., \$15. EX 1-4428. A

PIPER COLT 1/6 interest, no hourly charge, pay for gas plus share of expenses, \$200. AX 5-7236. A

DIAHATSU, 1961, 3-wheel, 3200 act. miles, new ena., \$150. FR 1-2948. A

SHOTGUN, Nikko over-under 28" barrel w/full-length ventilated rib, full & mod. choke, single selective triaquer, \$200. OS 6-9593. A

SEWING MACHINE, Riccar, 3-mos.-old, port., \$50. 327-1640. A

CHEVROLET, coupe, 1953, new trans. & tires, \$200. HA 5-6844. A

AIR CONDITIONER, Fedders, \$50. OS 6-1018. A

TROMBONE, Cleveland Superior, used 3 mos., \$95. 375-9657. A

CEMENT BLOCKS, approx. 350 6"x4"x12", 6¢ ea., half blocks free. PL 4-1964. A

TRIUMPH roadster, 1955, \$750. OS 6-5101. A

T-BIRD, 1955, less than 30,000 miles, \$1850. FR 9-1031. A

STOVE, gas, Western-Holly auto., aridale, \$75. 754-8957. A

WHEELS, 15" wire for TR, MG & Healey, \$10 ea. 363-0639. A

MERCEDES BENZ, 1957, 300 SL aull-wing coupe, Becker AM-FM radio, short wave, 6-band, good Michelin-X tires, \$5000. OR 1-8089. A

CHEVROLET, station wagon, 1959, 9-pass., r/h 4-dr., p/s, p/b, V-8, \$1100. LA 1-4711. A

FLOOR FURNACE, dual wall, 57,000 BTU, \$25. OR 4-702. A

RANGE, Kelvinator elec., apt-size, \$40. FR 4-0882. A

HOUSE, 3-car gar., patio, concrete block wall, 2-bdrm. & den, 6 mi. to Northrop, \$19,750. DA 9-5718. A

REFRIGERATOR, large Kelvinator, \$50. DA 4-4041. A

WANTED TO BUY

CORNET, B flat, DA 4-9593. B

TIRES, 560x15, black wall, reasonable. DA 6-0895. B

CESSNA 172, 1957 or later, buy or lease. 397-6326. B

SEWING MACHINE, recent model Singer or Elna. OS 5-4555. B

SLIDE PROJECTOR, or viewer, 35 mm, reasonable. 671-0300. B

RANGE, late model O'Keefe & Merritt, 865-2249, 391-4698. B

ENLARGER, 4"x5", prefer condenser-type, also lighting equip., focusing spots, etc. GE 1-4233. B

CEMENT MIXER, FR 4-7760. B

STATION WAGON, late model & in good condition. FR 9-4517. B

FREE (to be given away)

GERMAN SHEPHERD, female, 6-mos.-old, had all shots. 529-4786. D

KITTEN, grey & white, 8-wks.-old. PL 6-2314. D

RENTALS OFFERED

APT., 1-bdrm., unfurn., 4 blks. from Northrop, \$75 mo. OR 2-1716. E

APTS., 1/2 mile from Norair, laundry serv. avail., some w/2 baths, fireplace & dishwasher, furn. & unfurn., \$97.50 to \$190 mo. 372-2902, 679-1358. E

APT., 2-bdrm., unfurn., children OK, near Northrop, \$95 mo. DA 9-0314. E

CABIN, Lake Arrowhead, near lake & villaage, sleeps 6, \$50 wk. 379-2504. E

APT., 2-bdrm., 2 baths, furn. or unfurn., sub-parking, pvt. patios, soundproof, near downtown Inglewood, special concession to Northrop people, \$150 & up. OR 4-6602. E

STUDIO APTS., 2 & 3-bdrm., furn. & unfurn., 1 1/2 baths, heated pool, rec. rm., laundry, sub. parking, Inglewood, \$139.50. OR 2-7928. E

APT., 2-bdrm., unfurn., upper duplex, newly painted, near Van Ness & Century, water & trash pd. adults, \$80. mo. PL 7-7911. E

APT., 1-bdrm., furn., maple, lge. closets, close to mkt., trans. & Northrop, \$97.50 mo. PL 5-0630. E

SLEEPING ROOM, bachelor, util. furn., pvt. bath, & entrance, close to Northrop, \$45 mo. OS 6-7328. E

APT., 2-bdrm., unfurn., aar., service porch, fenced vd., 1 child, no pets, \$100 mo. OS 9-8035. E

APT., 2-bdrm., unfurn., triplex, fenced yard, walking distance to Norair, 2 children OK, \$100 mo. OS 5-6285, OS 6-2501. E

APT., 1-bdrm., laundry fac., carport-aarage, \$95-\$100 mo. OS 5-5898. E

APT., 1-bdrm., unfurn., adults, no pets, Hawthorne, 1st. half mo. free rent, \$84.50 mo. OS 5-1142. E

APT., deluxe 2-bdrm., unfurn. pool, patio, all extras, closed aar. \$115. DA 9-5986. E

APT., 1-bdrm. & 2-bdrm., 1 block from Northrop, furn., util. pd., pool, carport, laundry, adults, \$115 mo. 675-0715. E

DUPLEX, furn., 3-bdrm. w/patio, Playa del Rev, \$185 mo. OS 9-5506. E

Long Term Support



LITTLE LEAGUE HONOR—Howard Wayne, sales executive, Challenge Creamery Company and president of the 1964 Sportsman's Little League, honors Norair Division for 10 years support of Little League programs. Accepting a commendation plaque for the Division is Paul Crews, at right, assistant director, Industrial Relations. Company was thanked for sponsorship of league teams and tournaments for League District 37, Section 5. NRC representative for Little League affairs is Bob Luxton, Building Services and Salvage. Bob was one of the founders of the activity in Southern California.

Choice Football Tickets At Personnel Activities

Personnel Activities, Dick Pryor, general supervisor, announces that there will be football tickets on sale for all Coliseum home games to the UCLA Bruins and USC Trojans with USC versus

Colorado already in the books as of September 18.

This week it will be the UCLA Bruins versus Penn State, Saturday, September 26 at 8 p.m.

Next weekend, October 3, Stanford comes to town to play the Bruins at 8 p.m.

On October 10 will be USC versus Texas A & M at 8 p.m.

On October 24, Trojans versus Cal, 1:30 p.m.

The following Saturday, October 31, it's USC versus Washington, 1:30 p.m.

On November 7, UCLA takes on the Air Force Academy, 1:30 p.m.

The big game is next with USC and UCLA having at it on November 21, 1:30 p.m.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, October 7, 1964

HAWTHORNE

EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

Space Lab's OV2-1 Satellite Passes Design Review Board

The Air Force OV2-1 satellite program now being developed by Northrop Space Laboratories, has passed its first major milestone.

The event took place during a two-day Design Review Board meeting conducted by a team of 32 customer personnel from USAF and Aerospace Corporation.

A detailed explanation of the satellite was presented during the first day of the review by key NSL technical personnel. Heading the presentation team were Dr. Vincent Howard, vice-president, Systems department; George Muinch, director, Systems Engineering section; and Bill Armstrong, OV2-1 program manager.

A complete mockup of the vehicle was provided for inspection by Air Force personnel in attendance.

The second day of the review was devoted to the Design Review Board's action on Air Force request for alterations.

Air Force members of the Review Board included Lt. Colonel John C. Hill, OV2-1 program manager; Major J. W. McFarland, technical advisor, SSD; and Major W. J. Pardee, Northrop AFPR office. NSL key men were R. W. Craig, Contracts; Dr. Howard, Mr. Muinch, and Mr. Armstrong.

Commenting on the two-day event, Mr. Armstrong stated, "The theme of the design review was satisfaction of OV2-1 experimental requirements. Minor changes in the overall system were suggested, all of which were mutually agreed as to disposition.

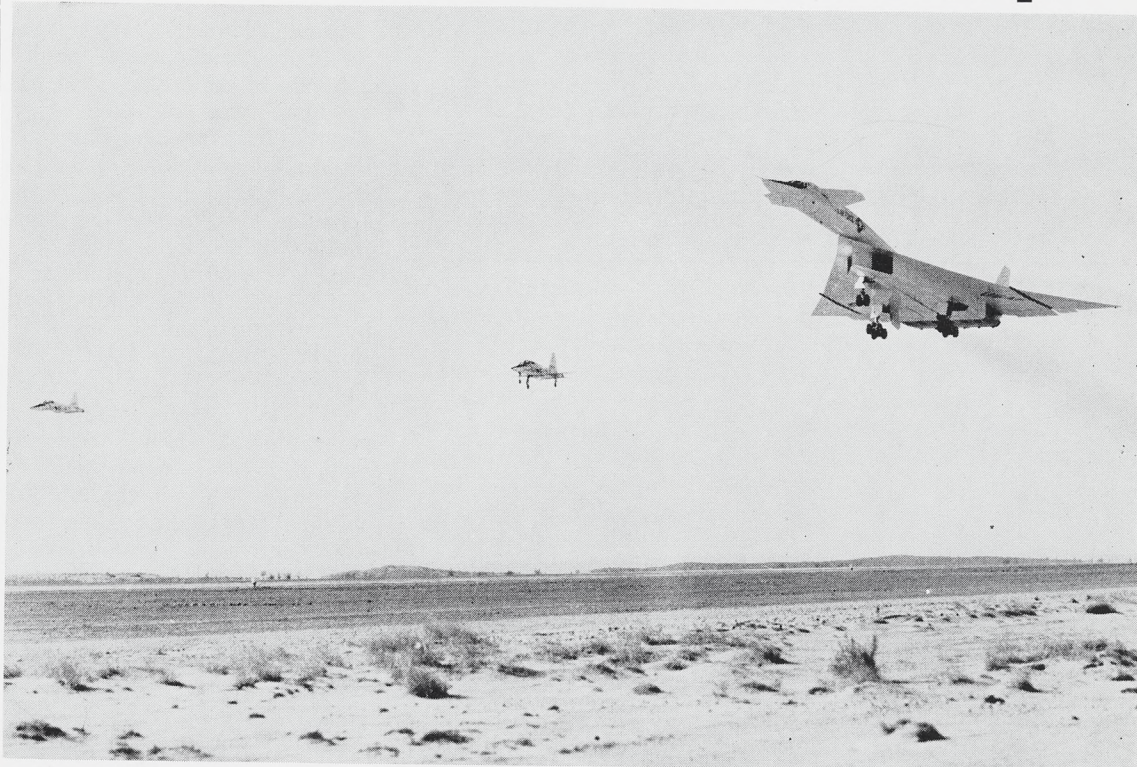
The review proceeded smoothly."

OV2-1, being developed by NSL for the Air Force office of Aerospace Research, is designed to carry 14 space environment sensing instruments and to collect and transmit the derived data for a period of one year. The experiments for this program are being developed by the Air Force Cambridge Research Laboratories, Air Force Weapons Laboratory, and Aerospace Corporation.

The satellite will be a payload on one of the Titan III development flights, and is being integrated with the requirement of utilizing proven off-the-shelf hardware for subsystems with the view of maximizing reliability while minimizing costs. An exception to the off-the-shelf approach of subsystem integration will be provided by a NASA Goddard-sponsored \$150,000 state-of-the-art development in satellite control system propulsion utilizing a subliming solid rocket (SUBLEX). This new development will be tried in flight for the first time aboard OV2-1 and should prove to be a large improvement over conventional cold gas control systems.

Overall mission objective is to place the OV2-1 spacecraft, with its complement of scientific experiments, into an elliptical orbit, and to receive the optimum amount of data from the onboard space environment sensors. Launch is scheduled during spring of 1965 with an elliptical orbit presently planned for an apogee of 2400 nautical miles, a perigee of 100 nautical miles, and an inclination of approximately 37 degrees.

Talons in B-70 Chase Duty



HISTORIC EVENT—Four T-38 Talon supersonic trainers—two showing in this photo—flew chase and camera to USAF's North American XB-70A on its Palmdale-Edwards maiden flight. Talons, rotating in teams of two with Air Force and North American pilots and cameramen aboard, have been assigned B-70 test program duty of taking the big Mach 3 bird out and bringing it in, flying chase, watching and photoing every move along the way. Duty is similar to that performed for NASA's X-15, where, with their record setting time-to-climb, T-38's monitor B-52 mother ship drop, and observe rocket engine ignition. Norair people had another important part in the B-70 program—subcontract manufacture of brazed stainless steel honeycomb panels that help give Valkyrie heat resistant strength.

1964 Business Down, Upturn Seen for '65

Northrop Corporation's consolidated net income for the fiscal year ending July 26, 1964 was \$6,767,000, it has been reported by Thomas V. Jones, president and chairman.

The earnings were equivalent to \$1.66 per share on 4,085,439 shares outstanding on July 26 as compared with \$2.16 on 4,201,063 shares a year earlier.

Consolidated sales for the fiscal year totaled \$301,811,000 as compared with \$346,961,000 in the previous year.

"While our sales and earnings declined during the past fiscal year, business already scheduled should bring substantial improvement in the fiscal year just begun," Mr. Jones said. "Our backlog at the end of the fiscal year totaled \$422,000,000 as compared with \$392,000,000 a year earlier. Of this backlog, \$375,000,000, or 89 percent, represents prime contracts and proprietary business.

"The lower sales and earnings in the past year were caused by a series of severe and unscheduled cutbacks resulting from readjustments by the government of important defense and space programs," Mr. Jones stated. "Following these cutbacks, we increased our expenditures for

(Continued on Page 2)



NRC LIFETIME—W. F. McGrath, Antelope Valley NRC chairman, presents lifetime membership card to retiring Raleigh Gately as token of Club esteem. Raleigh has been a Northrop employee since 1943. A Quality Control man, he was most recently on the F-5A program at Edwards. First planned is tour of Europe with the Mrs.

MAKE SALARIED SAVINGS CHANGES NOW—OCTOBER 28 IS DEADLINE

Time to make deduction changes in the Salaried Savings Plan is now, states Larry Littrell, Norair Personnel administrator.

Deadline is October 28. Effective date will be November 2.

The same holds true for Northrop Space Laboratories.

Deduction minimum is two percent, maximum five percent, of the individual's salary in effect as of August 1, 1964.

Changes can also be made in the allocation between the bond

fund and the stock fund. The total deduction can be earmarked for the bond fund, or 50 percent to the bond fund and 50 percent to the stock fund.

A change card must be completed and filed with Norair or NSL Personnel offices before the October deadline. Cards may be obtained from the Norair Personnel office, Plant One, extension 642, or from Compensation Administration branch, Engineer-

(Continued on Page 2)

Air Force Captains Here for 10 Months EWI Tour

Norair will again participate in the Air Force Institute of Technology's "Education with Industry Program."

On duty tour here this year in Industrial Planning and Procurement training are Captain Thomas C. Becker, jr., and Captain Ora L. Simpson, jr.

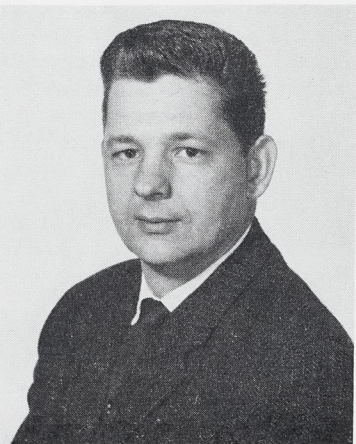
The Air Force has assigned a total of 110 officers to the program. Fifty-two companies from

throughout the United States are taking part with 17 types of training courses offered. Technologies involved include astronautics and space vehicles, civil engineering, missile range technology, nuclear technology, research and development administration, transportation, vertical takeoff and piloted aircraft, instrumentation guidance systems, maintenance

(Continued on Page 2)



CAPTAIN SIMPSON



CAPTAIN BECKER

Good Friends —And True

A few days ago I was invited to visit our Palmdale and Edwards facilities by Tom McCracken and Jack Farley, respective base administrators. These gentlemen were very thoughtful indeed in giving me this opportunity to say hello and goodbye before my retirement to ever so many of my long term Northrop friends and associates.

I have always had the highest regard for our "desert crew" and it was good once again to pump

will be the privilege that was mine in working on a team with men like La Motte Cohu, General Oliver P. Echols, Jack Northrop, Whitley Collins, Dick Nolan, George Gore, Jack Mannion, Tom McCarthy, and, of course, our present fine leader Tom Jones. I shall also recall working with Charles Bradford from whom I learned many things, particularly how to put a publication "to bed" and how to keep that up-beat news rolling off the

By John B. Clark

Norair Director, Industrial Relations

the hand of Lou Weltz, Tom Post, Dick Dougherty, Johnnie Vil-



arino, Al Graber, and so many others. It was a memorable day for me, what with the ride throughout the facilities in a Daihatsu which was furnished

for my transportation to save the wear and tear on my bad gamb. Where but at Northrop would this happen? It is going to be mighty hard to say my final farewells to such men as these and the privilege of working with them over so many long years will last in my grateful memory.

Our Palmdale and Edwards boys have unstinted pride in the Company products which they service and this pride has for years been an important part in our overall operations program. I never saw the boys looking better and it is a joy to see them go about their tasks so conscientiously. No surprise that we have come to regard them as rather "very special" people.

I am indebted to John Brene-man who acted as my chauffeur that day, picking me up at the crack of dawn and providing an enjoyable ride to Antelope Valley in perfect weather. I am likewise indebted to Tom McCracken for hosting a "So Long Johnnie" luncheon at the Antelope Valley Inn.

As this will probably be my last article in the News, our editor has given me permission to use it as a means of saying farewell to all my friends at Northrop before embarking on my retirement years. In contemplation of the long association that I have had at Northrop, a retiree in my position cannot help but weigh

typewriter—no mean feat if you can do it. Good editors like Brad make it seem easy.

I shall also recall the famous "Northrop Bombers," West Coast amateur champions on the ball diamond, who in the early days of NRC met and annihilated all competition. My book of memories will also include the accomplished artist Joe Kalina who guided the NRC Art Club so well—the art exhibits which the Club sponsors yearly wherein our talented personnel are given a public showing of their creations.

And I shall recall the loyal service to me by such as Eddie Baum, Larry Littrell, Roland Scott, and the fine support given me by our assistant director of Industrial Relations, Paul Crews. Fortunate indeed was I to have had the help and support on my Industrial Relations team of such stalwarts as Ben Trump, the late Charlie Boyle, Lyle Cripe, Dave Stadler, Doctors Krebsbach and Hall, Bill Parker, Frank Richardson, John Andre, Lee Johnson, Scotty McKenzie, Jack Cushman, Fred Wolfe, Dick Pryor, and Dave Cocks (retirement counselor, extraordinary) — good friends, all. And true? You bet!

I shall also cherish the memory of my friendship with Bill Larrabee, James Allen, Charlie Barr, Kay and Louie Cribbs, Don Roberge, and gentleman Lynn Jones, and at Norair, George Johnson, Walt Gage, Byron Bonnett and Bob Rolfe.

I fear that this article is getting too long but I cannot close without speaking a word of sincere thanks to Mrs. Juliet Caruso who with capability, charm, and patience handled the responsibilities as my secretary for more than seven years. And how could I ever forget the warm friendship of our Jimmie Celoni, Madelyne and Johnnie Cristelli (Johnnie never worked at Northrop but he and Madelyne never missed a Northrop social occasion), and Mildred Snell and her capable contributions to the success of Northrop in a number of important assignments.

It was a joy to work with friend of scouting, Bill Wareing, and other such dedicated men of his stature. Oh, yes, I could go on and on and this edition of Northrop Norair News would indeed become a tome so I had better quit. But I shall run that risk by also including Mal Mountain and Marie Tully who through their magnificent administration of our NORAIR program kept the Northrop heartbeat at normal pace for lo these many years.

Frankly, I am so darned proud of having had the privilege of

Division Graphic Services Wins Top Honors for Florida Brochure

Norair Graphic services personnel have been awarded three high honors for their in-house produced brochure and accompanying lithographs, "Florida and Northrop, Yesterday, Today and Tomorrow," it has been announced by John Bellevue, director.

Produced in the interest of community relations and for distribution in the Florida area, the brochure was awarded First Award—Brochure and Pamphlet Design, three or more colors; and Judges' Special Award — Semi-Technical Continuous Tone Illustration—full color, at the National Association of Industrial Artists Annual Art Exhibit held in the Department of Commerce Building, Washington, D.C.

The brochure was further honored by the CA Magazine (Communication Arts) Exhibition in Palo Alto, this month, when it was picked to be in the top 300 out of 15,000 entries. The 300 select pieces will be published in the Fifth Annual Communication Art publication.

Harland Krug and Ray Hae-

ner, commercial artists in Art services, designed and illustrated the winning brochure.

Theme of the work follows the title closely in glorifying Florida's past history from the days of the Spanish conquerors to modern times and relating this

tradition to the Northrop record of developments at the Cape.

The entire brochure was produced by Graphic services, including concept, design, color separation and plates, lithography, and binding. Four-color process was used throughout.



AWARD WINNERS—Norair Graphic services personnel have been awarded top honors for their in-house produced brochure "Florida and Northrop, Yesterday, Today and Tomorrow." John Bellevue, director, Graphic services, at left, congratulates Division commercial artists Ray Haener and Harland Krug for their winning work in the brochure's design and illustration.

Fiscal Figures

(Continued from Page 1)

company-sponsored product development and marketing efforts. Even under conditions of reduced volume and increased investment of resources, we were able to hold our principal operating ratios at fairly constant levels and to avoid increases in the cost of our products to our customers.

"Our broad technical diversification provides an expanding base for future growth," Mr. Jones said.

working with Northrop and to have been here during those priceless milestones that have marked the progress of our Company. I am referring now to such accomplishments as made by our little beauty in the early 40's—our N-3PB which we supplied the Norwegian government in exile and which in World War II struck the enemy's "Bismarck," and likewise the successful exploits of the Northrop P-61 Black Widow night fighter which performed so magnificently in the later stages of World War II, helping to bring that holocaust to an end.

When speaking of Northrop and its people I feel the story would be incomplete if we did not mention that during our over 25 years in business no employee has ever suffered the loss of one penny in his paycheck due to strikes, work stoppages, slowdowns or other byproducts of management-labor disputes. Likewise, the Company since its inception never lost one minute of production time due to such causes.

We have learned to live and work together in harmony and may it always be so. I feel that it will continue to prevail and from my desert abode I shall keep "watching" Northrop. I am sure that I will be pleased with what I see.

So, goodbye for now and God bless every one of you.

Air Force Captains

(Continued from Page 1)

nance engineering management, wire communications, and industrial planning and procurement.

Objective of the Industrial Planning and Procurement Program which Northrop offers and which is presented at the management level, is to train in management principles, policies, planning procedures, industry problems, and problem solving techniques.

Both Captain Becker and Captain Simpson have experience in Air Force contracting and procurement.

Captain Becker, 32, a native of Seattle, Washington, entered the Air Force in 1955. He has served as deputy and base procurement officer, Pope Air Force Base, North Carolina; chief, Buying Branch, Services Division; contracting officer; and chief, Call Contracts Division, USAFE Purchasing Center, United Kingdom.

He was educated at the University of Portland graduating in 1954 with an AB degree in business administration majoring in economics.

Captain Simpson, 32, has been in the Air Force since 1957 and has served as senior buyer, ASD; branch chief, Call Contracts Division; contracting officer; and BUSH (Buy US Here) project officer. His last three assignments were at the USAFE Purchasing Center, United Kingdom.

He was educated at the University of Cincinnati with a bachelor's degree in business administration in 1956 and at Ohio University where he was awarded a master's degree in business administration in 1961.

He has been an instructor at the University of Maryland and has been past president of Toastmasters International.

During their 10-month "academic year" at Norair, the two

officers will work side-by-side with Company personnel. All major functions and key activities will be studied.

Norair Air Force Education with Industry program is carried out in the Product Support department, Frank Mathes, manager, Harry Blocher, supervisor, Training and Training Equipment, who has handled the training with industry program for the past several years will again take charge this year.

Salaried Savings

(Continued from Page 1)

ing and Science center, extension 514.

AT NSL, cards are available at the Personnel office.

It is stressed that the maximum deduction allowed Salaried Savings Plan participants is based on their salary in effect August 1.

Adjustment periods are on a quarterly basis. The next salary base point will be November 1, with change deadline in mid-January and effective date during the first days of February.

The same general pattern follows throughout the year.

NORTHROP NORAIR NEWS

VOL. 22

NO. 16

3901 W. Broadway, Hawthorne, Calif. 90250

A NORTHROP CORPORATION
PUBLICATION

NORAIR DIVISION

Published every other Wednesday

CHARLES BRADFORD, Editor

Permission to publish material with credit to Northrop Norair News will be granted. News office extension—2456. Outside lines—678-9111, OS 5-4611.

**Buy
Savings
Bonds**

his meager contributions over the years with the abundance of good things that this Company and my friends have given me to tuck away in my memory book for use on any occasion which may require the strengthening of my personal morale.

Among my cherished memories

John Clark, Man of Many Talents Retires From the Northrop Scene

Man of many talents. The greatest of which is making friends.

Aerospace Reporter first saw John Clark at microphone and podium in 1942. He was on the recreation area stage out by the old "Pylon" cafeteria. Overhead were acres and acres of chicken wire complete with feathers all painted to show a farmstead and a road with a fork in it and a grove of trees. Camouflage to confuse enemy airmen should they penetrate our Pacific defense and gain the shores of California.

It was night shift lunch time. John made several announcements, mostly about NRC bowling meetings, Camera Club plans, progress of the War Bond drive. He then signalled to the projec-

crafters" gathered socially in force.

Drinkwater's *Abraham Lincoln*, with John playing all the parts including "Abe," Secretary Seward, the mother of the young sentry sentenced to be shot for sleeping on his post, the sentry himself and General Grant and the Union jailer, enthralled the tired folk of Elsinore in impromptu performance. John was just passing through one night on a confidential mission for the general manager. Had stopped at a hamburger stand. People gathered from blocks around.

McNAMARA'S BAND

To hear him sing McNamara's Band is a rare privilege.

When people laughed, rared back and laughed that is, or sobbed as for the fate of the sen-

By Aerospace Reporter

tion booth at the rear of the luncheon area, and the night's 25-minute serial portion of the movie began. Man in the projection booth was another Clark. Harry—no relation to John and of Nortronics these past several years.

We wartime workers settled to our lunches and the film. It was Greta Garbo and John Gilbert and they danced in gay old Vienna.

John, Mr. Personnel Activities of that day, knew what the audience wanted, and more importantly what they needed. Everyone escaped the problems of war for half an hour. Then it was back to the assembly lines and the drawing boards. The N-3PB was in full production. The Black Widow X airplanes were at the flight door. The Y airplanes were being hand-built in old Department 45. Drawings of the production version were coming out of Engineering, then above the Plant One lobby, in a steady stream.

ROSIE THE RIVETER

John—a man of many talents—then as now belonged to the people. Never, as you and I has John belonged entirely to himself. He was the personal property of us all, Rosie the Riveter the pilots, top management, engineers, mechanics, hammer house men, all.

You took your problems and your ambitions to John B. Clark. There was nothing official about it. You just did. And you always came away a better man and a better worker for having talked to him, leaned on him as it were, as you struggled to adjust to the night and day world of arms production. A strange unreal world to agricultural Americans of that long ago yesterday time.

And if John belonged staunchly to the people, the people certainly belonged staunchly to him.

A mundane meeting could become a fascinating soiree with John nearby. Business with him was never dull, while pleasure was an absolute lark.

His is an infectious magnetic personality. He never gave less than 100 percent.

The "Corn Brothers" vaudeville act, performed hundreds of times with the late Charley Boyle, was a favorite wherever "Nor-

thy, John's victory was complete, not until. He is a master psychologist.

People are his compulsion.

The John we've all known for so many years has that golden gift of spontaneous mimicry. He rivals Charlie Chaplin and Jonathan Winters.

W. C. Fields he does to classic perfection. Members of Northrop management, political figures, plant personalities, even Aerospace Reporter became leading characters in John's imitative skits whenever under discussion. But his characterizations never ridiculed. Rather the strong points were brought out and emphasized. Square chins became stronger. Intelligent brows became more scholarly. Eccentricities became personality strong points.

And perhaps this is the quality that so endears John to us.

John always turns the joke upon himself. Lesser men do not, cannot afford to. Their jokes must be on someone else.

This doesn't mean to say that John is entirely benign, doesn't have a temper. He does as those of us, who in mortal moments gave less than our best, can testify. Fact, his temper was as explosive as his generosity was boundless. Once the flame died which was usually quick, you started off anew, refreshed, re-fortified and with solemn inward vow to do better, much better.

GET TWO MORE

John's love for people and his interest in their comings and goings found fertile fields in his association with the Northrop Recreation Club. A "Good Time Table" of clubs and activities "from archery to zither playing" was his proudest statement, and truly as the years flowed past this was fact. State your hobby and your interest and John helped get a club started. The list is exciting. Bridge. Horseback riding. Chess. Stamps. Horseshoes. Gems. Golf. Bowling. Softball. You name it, get two more people.

Director of Industrial Relations for the past 17 years, John brought his attributes up the ladder with him. His service record speaks loudest. Preceding him in the position during the first seven years of the Company were

three men for an average of 2.33 years each.

John tended many responsibilities as a Northrop man. Under his administration wing at various times during his career were Personnel Activities, Credit Union, Personnel, Training, Employee Relations, the Norair News, Plant Protection, Safety, Security, Wage and Salary, Hospital, Group Insurance, Retirement, Cafeteria.

Programs were his meat and drink.

He was father confessor to the Northrop Management Club and, of course, Personnel Activities; to the Industrial Relations sections of other budding divisions.

As the Company grew John's own personal decision precluded broadening his field to Public Relations, when during a time of reorganization he was offered that directorship. He respectfully declined saying, "I must serve one master, Industrial Relations."

His outside duties for the Company were many and varied. He has served for years on the Industrial Relations committee of the Aerospace Industries Association. He served on the President's Committee on Employment of the Physically Handicapped during the Truman and Eisenhower Administrations. He was chairman of the Governor's Committee on Employment of the Physically Handicapped. He was a member of the Citizens Advisory Committee to the Attorney General on Crime Prevention, and the Governor's Advisory Committee on Children and Youth.

MEMBERSHIPS

He has also worked for the advancement of his profession through memberships in the industrial relations committees of the National Association of Manufacturers, Merchants and Manufacturers Association of Los Angeles, Los Angeles Chamber of Commerce, Hawthorne Chamber of Commerce, the Bureau of National Affairs, and many more.

He is an accomplished public speaker, never failing to bring his subject to life, never failing to hold his audience, never failing to stir ideas and imagination, arouse constructive controversy.

John was master of ceremonies at hundreds of meetings and dinners. He was chairman of conferences by the dozens.

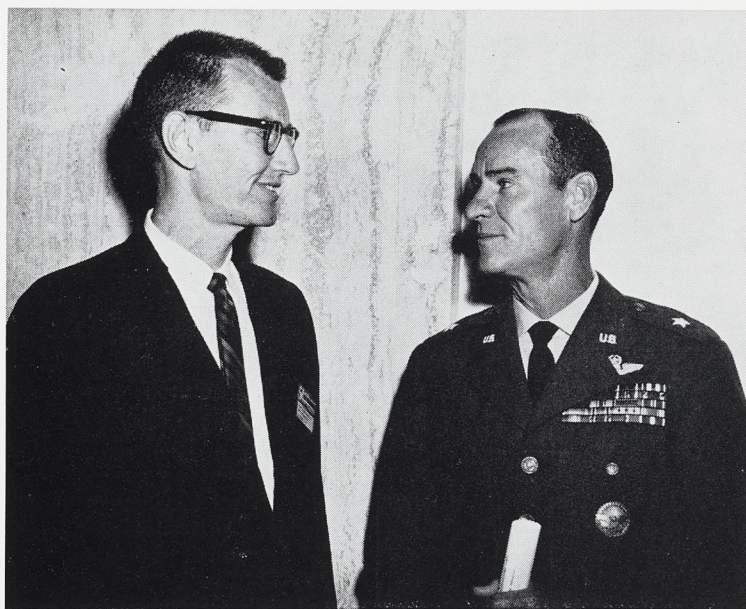
He was an unfailing supporter of the Community Chest and the Red Cross. He sold War Bonds and Savings Bonds in the billions of dollars.

The Salvation Army, Boy Scouts, Girl Scouts, Campfire Girls, Sheriff's Association found John a friend whose door, like-wise purse, was always open.

TO YUCCA VALLEY

Us stay-at-homes at Northrop are certainly going to miss John and Peggy as they sojourn in good retirement in Yucca Valley. Word has it that the window of their desert apartment looks out on the 18th hole of the local golf course. And if the desert wears well, they plan to build a house, one that from high vantage looks over the Mojave's splendid basin and range.

Many, many things are the



PROJECTING SAFETY—Participant in the recent Air Force-sponsored conference on Safe Movement of Dangerous Materials was NSL's Robert Musslewhite, senior engineer, Space Simulator Labs, shown here at left with Brigadier General Jay T. Robbins, director of Aerospace Safety, Norton Air Force Base. Mr. Musslewhite delivered the paper, "Handling Dangerous Material in Confined Spaces."

Dangerous Materials, Topic Of Air Force Safety Meet

A four-man team from Norair and Northrop Space Laboratories participated in the recent 54th Air Force-Industry Safety conference held last week at the Riviera Hotel in Palm Springs.

Led by Lee Johnson, Norair chief safety engineer, the team included—from Norair, W. W. Wescott, flight safety engineer, and Robert Kaminski, Company representative, Norton Air Force Base. From NSL—Warren Schreyer, chief, Space Simulator Laboratory, and Robert Musslewhite, senior engineer, also of Space Simulator Laboratory.

Welcoming address was delivered by Brigadier General Jay T. Robbins, Air Force director, Aerospace Safety, whose Pentagon-level Ground Safety Division

from Norton Air Force Base sponsored the conference.

General Robbins spoke on "The Changing Role of Aerospace Safety."

Mr. Musslewhite delivered the paper "Handling Dangerous Material in Confined Spaces" as part of the program in which industry participants sought to spell out vehicle carrier concern and capabilities, environmental control, and transportation consideration.

Colonel N. T. Shapira, chief of the U.S. Army's Munitions Command Orientation team, Edgewood, Maryland, spoke on "The Role of Chemical Weapons."

Chairman of the conference was Colonel James F. Risher, jr., from the Ground Safety Division.

"Millie" Millikan Rates Praise for ANG Mission

A dramatic demonstration of how quickly Air National Guard units can augment front line forces anywhere on the globe came August 11 when Brigadier General W. W. Millikan, senior Norair representative in Washington, led 19 F-100 Super Sabre jets of his 113th Tactical Fighter Wing on a non-stop deployment to Germany.

Called "Operation Ready Go," it was the first non-stop flight of Air Guard units to Europe and the first such flight in Air Guard history.

General Millikan's District of Columbia Air National Guard

grist that is ground as a company mills its image.

Safe to say, Northrop's first 25 years have been profoundly and permanently influenced by John B. Clark's sagacity, wit, common sense, hard work, personal charm, and feeling for the man at bench or board.

What else for us but a good place to work when such management men of good will put down the foundations and then remain a champion.

From every last "Norcrafter" to John and Peggy in retirement, it's good fishing, good golfing, good traveling and may your finest years be kind.

F-100's were refueled three times by ANG tankers on the 9½-hour flight from Andrews Air Force Base, Maryland, to Hahn Air Base in Germany.

While at Hahn, the 113th flew missions in support of U. S. Seventh Army forces and USAF. All ground support operations for the one-week deployment were performed by Guard specialists.

General Walter C. Sweeney, commander of the Tactical Air Command, praised the 113th Wing in a personal wire to General Millikan which read as follows:

"The outstanding success of 'Operation Ready Go' once again demonstrated the versatility and professional competence of Air National Guard forces. This movement was particularly significant since it was the first non-stop transatlantic flight of National Guard aircraft. The demands on your units have been great, especially in view of the adverse weather which necessitated additional planning on very short notice. Please convey my congratulations to all members of the 113th Wing for their significant contributions to this highly successful mission."



RIDES WANTED

7 a.m. — 3:45 p.m.

ORANGE & 37TH ST., Long Beach. G. J. Grummer, ext. 2574, GA 4-6383. 2

TERMINO AVE. & 7TH ST., Long Beach. LLOYD E. PERKINS, ext. 1277, 438-3965. 2

7:30 a.m. — 4:15 p.m.

SOUTH & CLARK, Long Beach. Dinorah Santiago, ext. 2306, 423-4832. 3

HAWTHORNE BLVD. & MANHATTAN BEACH BLVD., Lawndale. Sandra Sickler, ext. 1530. 3

HAWTHORNE BLVD. & 190TH, Torrance. Betty R. Coats, ext. 1621, FR 1-4280. 3

8 a.m. — 4:45 p.m.

HIGHLAND & 30TH ST., Manhattan Beach. Julie Jones, ext. 2348, 374-1662. 5

EUCLID & CHAPMAN, Garden Grove. J. Evans, ext. 1338, JE 4-3369. 5

RIDES OFFERED

7:30 a.m. — 4:15 p.m.

HAWTHORNE BLVD. & 190TH, Torrance. Betty R. Coats, ext. 1621, FR 1-4280. 13

8 a.m. — 4:45 p.m.

EUCLID & CHAPMAN, Garden Grove. J. Evans, ext. 1338, JE 4-3369. 15

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

METROPOLITAN, 1957, convert., needs top & body work, \$225. NE 2-7610. A

STAUFFER TABLE, complete. \$85. OS 9-7230. A

DRILL PRESS, late model Walker-Turner, 20", 4-spindle, fully equipped, 3/4-hp motor. \$1195. OR 1-8771. A

PLAYPEN, mesh, will deliver, \$8. 347-0888. A

REFRIGERATOR, Coldspot, \$75. OS 5-1057. A

FORD, V-8, flathead eng., for boat, \$75. EX 1-4860. A

RAILROAD LAYOUT, HO model, 5x8 ft., 4 elec. switches, 2 enas., 8 cars, \$40. GE 1-4233. A

VOLKSWAGEN, 1958, radio, \$750. FR 2-0649. A

TRAILER, camper-utility, \$125. 676-6550. A

STEP TABLES, coffee table set, hardrock maple. \$35. FR 1-4887. A

WASHER, Kenmore, auto., \$40. TE 4-0362. A

MOVIE CAMERA, Bolex B8, dual turret, optical zoom-type finder, frames/sec. 8-64, YVAR 12.5 mm fixed focus & YVAR 36 mm focusing lenses carrying case & hand strap. \$80. DA 4-5135. A

VOLKSWAGEN, 1962, sunroof, 3-band P. B. radio, wheel covers, \$1525. TE 3-4191. A

CABIN CRUISER, 25' Owens, 1960, 185-hp Flaaschip, sleeps 4, \$4200. 897-3436. A

BEDROOM SUITE, maple, inc. 6-dwr. dresser w/full width mirror, Golden Sleep, deluxe, Sealy brand spring & mattress, \$100. 675-2297. A

HOUSE, 3-bdrm., den, Palos Verdes stone fireplace, patio, landscaped Del Amo area, \$29,950. 371-1362. A

FORD, 1953, heater, stick shift, good trans., \$150. OR 4-9599. A

HOUSE, 4-bdrm., lease to occupant, expiring Sept. 1965, w/income of \$179.90 mo., corner loc. in La Mirada, \$21,500. LA 1-4711. A

WASHER, wringer-type, Kenmore, \$25. 672-5578. A

TABLE, 2 chairs, \$13. Box 1601. A

PORSCHÉ, 1963, Super 90, AM-FM radio, headrests, \$4095. 670-0054. A

WASHING MACHINE, auto., \$25. PL 5-9075. A

IRONER, Thor Gladiron, auto., \$20. PL 6-7284. A

MOVIE CAMERA, 8 mm Keystone, auto. projector & screen, \$75. OS 6-7357. A

PONTIAC Gran Prix, 1963, factory air cond., p/b, p/s, r/h, \$3150. OS 6-7614, HO 2-1781. A

OLDSMOBILE, 1958, full power, \$550. 675-1592. A

FOR SALE

DINETTE SET, wrought iron, \$20. 676-7315. A

CHEVROLET, 1960, 6-cyl., p/b, p/s, re-built auto. trans., \$800. 672-6755. A

SKIS, 1 pr., 6'3", ebonite base & ski-free safety bindings, A&T Champion model, used 1 yr., \$30. FR 7-3888. A

POWER MOWER & edger, King O' Lawn, \$250. 675-0521. A

CABIN CRUISER, 21' 60 Owens inbd., other equipment, \$400 down, \$2400. GE 9-0453. A

HOME, 2-bdrm., by owner, Norwalk, patio, dinette, lae. lot, \$15,500. UN 4-5120. A

RUNABOUT, Glasspar, 14' w/Evinrude motor, elec., all access., tilt trailer, 20-hrs. use, \$975. 354-3806, SY 4-6565. A

DRUM SET, Slingerland, compl. w/cymbals, cost \$600. \$400. PL 4-3814. A

PUPS, Pomeranian tiny, female, AKC reg. champion background, \$75. 676-9670. A

DINING CONSOLE, mahogany, 20"x36", opens to seat 12, custom pad, \$100. SP 6-1286. A

FORD, station wagon, 1956, o/hauled, \$225. FR 9-4517. A

BICYCLE, boy's, 26", \$12. PL 5-4497. A

FORD Fairlane, 1957, auto., r/h, needs new trans., \$150. DA 9-3593. A

JEEP, 1946 w/tow bar & Warren hubs, \$650. OS 6-6390. A

MOTORCYCLE, H. D. Sportster model 58XL, windshield & dir. signals, less than 18,000 miles. \$550. OR 7-4488. A

STEREO, port., Decca w/extra speaker, \$45. 478-5732. A

OLDSMOBILE, 1963, F-85 Cutlass, full power, \$2500. OR 8-8514. A

PIANO, Fairbanks, upright, been cut down, mahogany, \$250. Box 1602. A

KARMANN GHIA, 1963, less than 10,000 miles, \$2195. 371-8939. A

BEDROOM SET, Haywood - Wakefield, 5-pc., \$350. TE 3-7306. A

LIMIT-ONE ITEM

CABIN at Big Bear Lake, close to boat landings on Gilner Point, furn., sleeps 8, terms avail., \$8250. 714-539-6203. A

CEMETERY LOTS, 2, dble. interment, Inglewood Park Cemetery, El Portal section. \$2100. 371-4594. A

REFRIGERATOR-FREEZER, Westinghouse, 13' w/built-in kit, 1961 model, \$75. DA 9-9702. A

SHOPSMITH, w/jointer & many extras, \$115 plus take over \$15.35 mo. pymts. for 7 mos. PL 7-7911. A

HOUSE, Palos Verdes 3-bdrm., 2 baths, 1950 sq. ft. split-level, fireplace, landscaped, sprinklers, 2 1/2-yr.-old, \$40,950. 377-5075. A

FUR CAPE, custom-made, Russian squirrel backs, sable dyed \$65. AX 5-5813. A

CHRIS CRAFT, 15' w/35-hp Evinrude, elec., trailer, extras, will finance, \$595. FR 4-2232. A

SAW, 7" elec., 1 1/4-hp hvy. duty motor w/ball bearing slip clutch, \$35. 323-3424. A

TELEVISION, 17", port., Silvertone, \$29. ME 3-2395. A

ENGINE, Clinton, 1 1/2-hp, 2-cyl. gas w/6-volt aen. amp meter, \$15. FR 5-5036. A

STOVE, apt-size pink, 2-yr.-old, \$100. PL 6-6302. A

VOLKSWAGEN BUS, 1962, \$1550. GR 7-7833. A

VANITY w/stool & mirror, child's, maple, \$12. 371-8564. A

FOR TRADE

FREEZER, Ben Hur, upright, trade for working clothes dryer, elec. 329-9484. C

REDUCING TABLE, Stauffer, used twice, trade for arandmother's clock in working condition. 377-6295. C

RENTALS OFFERED

HOUSE, 2-bdrm., furn., w/aar. & enclosed yd., 1/2 block from ocean in Manhattan Beach, \$155 mo. FR 4-5028. E

APT, 2-bdrm., pvt. patio, near Northrop, \$140 mo. 377-7468. E

APT, 2-bdrm., carport, 2 children ok, \$95 mo. 320-2827. E

DUPLEX, 1 story, on bus line, children & pets ok, range & ref. avail., fenced yd., \$70 mo. 675-9389. E

HOME, 4-bdrm., college grad., male, to share w/3 others, furn., Redondo Beach, \$75 mo. 379-6035. E

SLEEPING ROOM, bachelor, util. furn., pvt. bath & entrance, near trans., Northrop, \$45 mo. OS 6-7328. E

APT, 1-bdrm., laundry facil., carport, close to Northrop, \$90 furn., \$80 unfurn. OS 5-9695. E

APT 1-bdrm., 1 mile from Northrop, \$82.50 mo. OS 6-8816. E

HOUSE, 3-bdrm., newly decorated, lae. enclosed yard, 6 blocks to beach, \$160 mo. FR 2-5127. E

Sailing Club Starts Class In Seamanship

The NRC Sailing Club, Bernie Bowen, commissioner, has launched a series of classes to teach the fundamentals of sailing and sail boat handling.

The regular sessions which began last week are held in the NRC Clubhouse every Wednesday evening at 7:30 p.m., the second Wednesday of each month being excluded.

It is not too late, however, for interested skippers and crew-types to take advantage of the remaining lectures. A certificate of completion will be presented at the final meeting.

Even bigger Sailing Club news according to Bernie is the Club's first annual fall dinner dance to be held on October 17 also at the NRC Clubhouse. Time is from 8 p.m. to 1 a.m.

Music will be by the Gary Adams trio.

Dinner time, catered service, is from 8 to 9:30 p.m.

Door prizes and decorations will be provided.

Tickets are \$3.50 each and are available at Personnel Activities.

The fall racing season also starts Saturday, October 17 at 12 noon at Redondo Harbor. Winner's trophy for that day will be presented at the dance.

Blood Bank In Call For 330 Donors

The next Northrop blood bank has been set for Thursday, November 12. Location will be the Plant Three cafeteria and hours will be from 7:30 to 11:30 a.m.

Transportation points will be Plant One main lobby, Engineering and Science center lobby, Northrop Space Laboratories lobby, Plant Two and the Johnson building. Mariposa will also arrange transportation for donors from that area.

Goal for this visit is 330 donors.

Figures show that the present Northrop family withdrawal rate equals the number of pints being taken in. Therefore, more donors are sorely needed in order to establish a reserve.

DUPLEX, furn. & unfurn., 3-bdrm. w/patio, in Playa del Rey, \$170 & up. OS 9-5506. OS 5-2305. E

HOUSE, 2-bdrm., trash & water pd., 2 children ok, no pets. \$100 mo. 371-6775. E

APT, 1-bdrm., unfurn., pvt. patio, closed garage, Torrance, \$95 mo. DA 0-4058, FR 5-0867. E

APT, unfurn., 2-bdrm., pool patio, all extras, closed garage, \$125 mo. DA 9-5986. E

APT, 1-bdrm., cus. decorated, sub parking, pvt. deck & pool, \$100. 373-1143. E

APT, bachelor, furn., \$55 mo. OS 6-2162. E

APT, single, util. furn., 5 min. to Northrop, \$67.50. 754-4007. E

APT, 2-bdrm., furn., lae. closets, disp., carport, util. paid, \$135 mo. TE 3-2512. E

PERSONALS

YOUR kind thoughts & expressions of sympathy were deeply appreciated. BRUCE & ELAINE KORTZ & JEAN COBURN. L

FOR SALE OR TRADE

PLYMOUTH, 1959 Belvedere, auto. trans., r/h \$750 or trade for late model compact auto or station wagon. OS 5-1726. M

RIFLE, 300 Savage, \$60 or trade for auto, 22-cal. rifle. OR 7-5276. M

Petros Hook Two



HONEYMOON HARVEST—Norair Planning's Don Petro and bride Beverly journeyed to Mazatlan on their honeymoon, decided to go fishing, did, and filled the family deep freeze for many days to come. Don and his new Mrs., as photo shows, caught a 385-pound marlin and a 95-pound sailfish which seems to be a Northrop record for the season. Congratulations Mr. and Mrs. Petro, and again congratulations.

NRC Tennis Club to Enter Teams in Mid-Cities League

The NRC Tennis Club, John Potts, commissioner, will enter the Mid-Cities league for the fourth consecutive year. Team rosters have been submitted with all classifications well represented.

The Mid-Cities league, a time-honored tennis institution, will begin its 30th year with the first games to be played on October 11.

Commissioner Potts reports that over 500 players representing 10 adult clubs are expected to participate. Banning Park, El Segundo, Hawthorne, Inglewood, Long Beach recreation, Manhattan Beach, Northrop, Palos Verdes Peninsula, Redondo Beach, and South Gate.

Following the Mid-Cities games a league tournament is to be held in January with separate B, C, and D events for men and women, competition being on an individual basis.

Additional NRC Tennis Club plans for the season include a weekend trip to La Jolla Beach and tennis club on November 7

and 8; aerospace industrial league participation starting in January; intra-club tournaments, ladder matches, and regular Saturday practice sessions to be held at the recently reconditioned El Camino College courts.

SCOTCH DOUBLES BOWLING SET FOR WEEKEND

An NRC Scotch Doubles bowling tournament has been set up for this coming weekend, October 10 and 11, it has been announced by Commissioners Bill Myerson and Vi Jennings.

All Norair and NSL bowling personnel are eligible plus partners made up from families and friends.

Entry fees are \$4 a couple. Deadline is tomorrow, October 8.

Place is the Rosecrans Bowl at 2030 W. Rosecrans in Gardena.

Time—Saturday, 12 noon, 2, 4, 6, and 8 p.m. Sunday, 12 noon, 2, 4, and 6 p.m.

CAN YOU THINK ON YOUR FEET—?

The NRC Toastmasters Club creed . . .

. . . To improve in oral expression of thought.

. . . To develop ability to appear effectively before audiences.

. . . To provide constructive criticism and comment on all speeches, giving each speaker the benefit of audience reaction.

. . . To develop the habit of analytical listening.

. . . To provide instruction and experience in chairmanship and parliamentary procedure.

. . . To promote good fellowship among men interested in speech improvement.

The NRC Toastmasters Club, Bill Justice, commissioner, holds regular meetings each Thursday, 6:30 p.m. at the Cockatoo Inn, Imperial and Hawthorne Boulevard.

All Norair and Northrop Space Laboratories personnel are invited to participate.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, October 21, 1964

HAWTHORNE

EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

WCMR Invites Personnel To Palmdale Open House

Cordial invitation is extended employees of Northrop Corporation by Air Force's Western Contract Management Region headquartered at Los Angeles Air Force Station, to Antelope Valley's Aviation Day, heralded as the greatest Air Force demonstration and static display to be held in the Los Angeles area in recent years.

Featuring the famed USAF "Thunderbirds," the gigantic air-power spectacle, sponsored jointly by the Antelope Valley Progress Association and the U.S. Air Force, is scheduled as a salute to the United Crusade in recognition of Air Force and civilian teamwork in the aerospace program.

The Air Show will commence at 2 p.m., Sunday, November 1, at WCMR's Air Force Plant 42 in Palmdale, California. A crowd of 50,000 visitors is anticipated, with base gates opening upon the memorable space age ground display at 10:30 a.m.

A formation flyover will present the A-4E, T-38 and F-104. In a bomber flyby the B-52, B-47 Stratojet and B-57 Canberra will pass over.

Planned to be on static display are the NASA Lunar Landing Research Vehicle and M-2 lifting body, Northrop's T-38 and F-5, Douglas DC-9 model and an A-4E, Lockheed C-141 jet transport, and Boeing B-52 Stratofortress aircraft, and a working model of the North American X-15 in which children and adults will be invited to climb in and operate, as well as walk-through displays of the Boeing 707 and Douglas DC-8 commercial jet aircraft. Three space rocket en-

gines will be on exhibition, one a cutaway.

The prime attraction of the day will be the precision flight demonstrations by the renowned "Thunderbirds," official synchronized aerobatic team of the U.S. Air Force. The high-flying U-2, weather reconnaissance aircraft much evidenced in recent headlines, will be seen closeup on display and demonstrated in flight.

Other scheduled events will include helicopter demonstrations, exhibitions of pin-point cargo-drops, skydiving, and spot-parachuting on target by skilled sport parachute jumpers.

A spectacular flyby will feature the Convair B-58 Hustler in a speed pass and afterburner climb.

A feature to thrill spectators is North American Aviation pilot Bob Hoover, performing a series of low-level aerobatic and precision flight maneuvers in the combat-proven WW II/Korea veteran fightercraft, the P-51 Mustang.

According to Lt. Col. Joseph Davies, commander of the WCMR Palmdale facility, the valley's Aviation Day festivities are expected to be the biggest sky-and-ground show ever to be seen in this area, since current FAA regulations prohibit air shows over the metropolitan area. Colonel Davies points out that the skyshow and ground exhibit will provide residents of the area with an unparalleled opportunity to see at first hand the crowning accomplishments of the aviation industry assembled at Palmdale, where more production aircraft are manufactured than at any other facility in the United States.

AIAA NOMINATES HORNER TO PRESIDENCY FOR 1965 YEAR

Richard E. Horner, Corporate senior vice-president and general manager for Norair and Northrop Space Laboratories, has been nominated as 1965 President of the American Institute of Aeronautics and Astronautics, Institute officials announced last week. The current AIAA president

is Courtland D. Perkins, chairman of the Department of Aerospace and Mechanical Sciences, at Princeton University. Professor Perkins' term expires January 27, 1965.

The American Institute of Aeronautics and Astronautics is a professional society of flight scientists and engineers with a membership of 36,000. The Institute provides a forum for exchange of information among professionals at some 20 national meetings each year and through three journals and one magazine, *Astronautics & Aeronautics*. The AIAA also administers one of the nation's largest aerospace technical abstracting and indexing services.

Other officers nominated to the AIAA board of directors include: Robert A. Gross of Columbia University, vice-president of Publications; Robert W. Bussard, TRW/Space Technology Laboratories, vice-president of Technical Activities; and John F. Tormey

of Rocketdyne Division of North American Aviation, vice-president of Section Affairs. The nominee for treasurer is Martin Go-



RICHARD E. HORNER

land, of Southwest Research Institute.

Mr. Horner is currently a member of the Air Force Scientific Advisory Board.

SPACE LABS IN CALL FOR TEXAS TECHNICIANS

A "help wanted" appeal has been voiced by Northrop Space Laboratories Personnel office following the NASA joint venture award to Brown Root-Northrop Corporation for support services at the Manned Spacecraft Center, Houston, Texas.

Larry Long, Northrop Space Laboratories employment supervisor, has urged that all Northrop employees who have friends in the Texas area experienced in electrical, mechanical and environmental testing, hydraulics, cryogenics, and instrumentation, call him on extension 2798 so that he may arrange interviews.

The foregoing skills, although of prime necessity to the NASA program, do not qualify in the established referral award categories where \$100 is paid the referee for each successful applicant. Mr. Long stated.

F-5 Returns Home, Departs On TAC Tour

Home again. Gone again.

Such is life for F-5B N8008, Norair European tour and demonstration airplane.

(See Northrop Norair News Aerospace Reporter story, August 26, 1964.)

Arriving home via C-133 on October 5, N8008 went immediately into preparation for an extensive tour of U.S. Tactical Air Command bases. She left Edwards for Andrews on October 11, with additional stops at Langley, Shaw, and Eglin.

Return to the coast is set for November 11.

Some facts, figures and statistics on the European performance as reported by Dan Darnell, manager, Norair Customer Relations and leader of the group:

There were 253 demonstration flights totalling 201 air hours.

Guests taken aloft, 198.

There was an average of 4.5 flights made for each demonstration day scheduled.

The airplanes racked up an 88½ percent squawk-free record for total landings. Tour distance came to 12,865 statute miles, all accumulated in Europe and the Middle East.

Configuration Management Reports Issued on T-38/F-5

Norair Division is first in the aerospace industry to bring out fully documented status accounting reports in support of the Air Force Systems Command's new configuration management concept.

Sal Xifo, director, Program Configuration Management and Administration, advises that computer runs have been made on the T-38/F-5 and OACII and

CSAR have both been presented on schedule to the customer.

Acronymically, OACII stands for Operational Approved Configuration Identification Index while CSAR indicates Configuration Status Accounting Reports.

The documents conform to the new dynamic management concepts developed by AFSC and will be vitally useful to the many

(Continued on page 2)

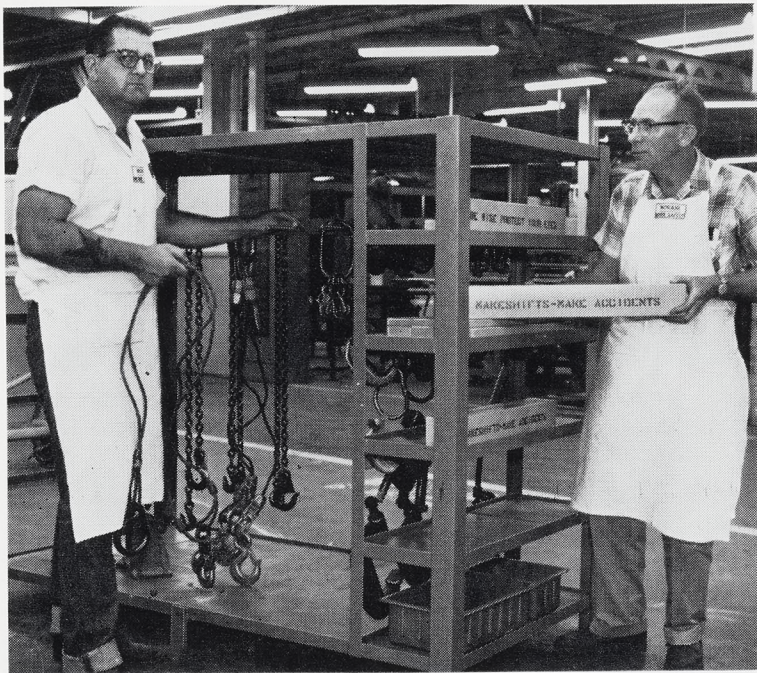


FROM BITBURG AIR BASE, GERMANY—Colonel James F. Hackler, Jr. (l-r), 36th Tactical Fighter Wing commander; Dan Darnell, Northrop Norair Customer Relations manager and F-5 European tour leader; and Lt. Colonel Jackson Saunders, assistant wing deputy commander for Operations, talk over the performance of the F-5 aircraft which visited Bitburg before returning home. Colonels Hackler and Saunders made orientation flights in the fighter which now has completed a 13-nation overseas tour. (USAF Photo)

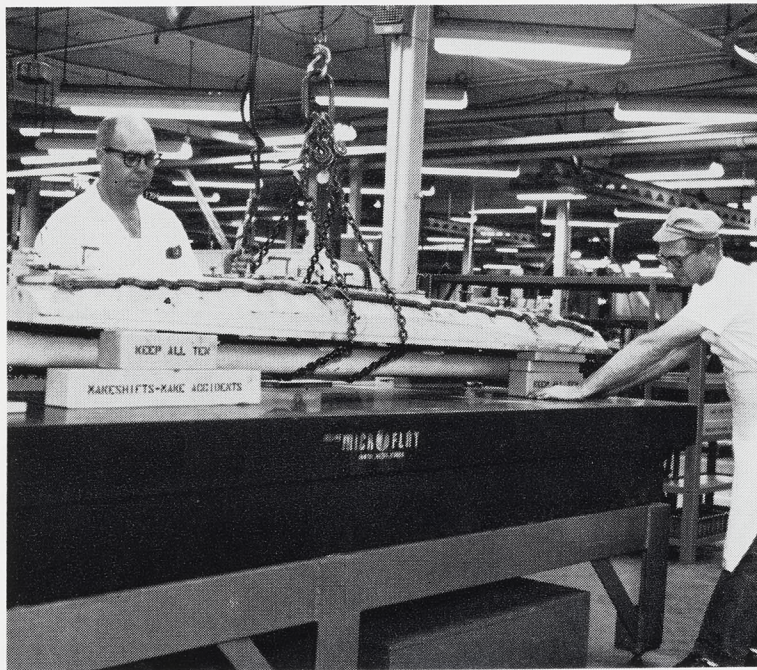


CONFIGURATION MANAGEMENT—Norair Division is first in the industry to submit aeronautical weapon systems configuration management reports to the Air Force. In photo, Sal Xifo, director, Program Configuration Management and Administration, right; and Ken Yost, chief, T-38/F-5 Program Configuration Management, second left, present first documents to George Adams, Northrop AFPR Office and Captain Joe Romanick, chief, Configuration Management, ASZJC. Reports—OACII and CSAR—contain information vital to the support of the T-38/F-5 program and will be used throughout the free world.

Neatness Preferred



SETUP KITS ARE THE ANSWER—Here night shift Tool Fabrication's Charles Frantz and Jim Lowell demonstrate fast reaction time made possible by use of new tooling setup kits comprising storage racks, selection of vari-sized blocks engineered for shoring precision equipment, variety of chain slings plus special clamps and other miscellaneous tooling tools. Racks pay triple dividends in good housekeeping, in safety, and increased quality.



QUALITY AND PRECISION — Photograph above shows Eugene Gruber and Jay Berg positioning heavy jig on surface table. Setup aids are close by in rack in background. Tool shoring blocks serve admirably for short-and-to-the-point safety messages. "Keep All Ten" refers to fingers and toes. Other messages are aimed at eye protection, accident avoidance, and good housekeeping. Tool Fab night assistant general foreman is Warren Bogart.

DAYLIGHT TIME ENDS SUNDAY, RESET CLOCKS

Relax.

Turn that alarm off and sleep another hour.

But don't forget to set the clock back sixty minutes as of Sunday morning, 1 a.m., October 25, because at that time Daylight Saving Time will pass into limbo.

But never fear.

D-S-T, just the thing for golfers, gardeners, campers, shoppers, will emerge bright and shining once again, six months hence—April 25, 1965 to be exact.

NORTHROP NORAIR NEWS

VOL. 22

NO. 17

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A NORTHROP CORPORATION PUBLICATION

NORAIR DIVISION

Published every other Wednesday

CHARLES BRADFORD, Editor

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TOMBACH MADE DIRECTOR FOR EUROPEAN ORDAP

Harold Tombach, formerly of Norair's operations analysis organization, has assumed new duties as European director of Northrop Corporation's Operations Research Development Assistance Program (ORDAP).

Mr. Tombach will make his headquarters in Europe. He succeeds, and will report to, J. L. Taylor, corporate director of the operations research development assistance program organization, who has directed the European program for the past three years.

Mr. Tombach, who is an internationally-recognized specialist in the operations research field, is fluent in six languages, including English, French and German. In addition to his work in operations analysis at Northrop, he has been employed by Aerospace Corporation, System Development Corporation and the Rand Corporation.

Retirees—August and September

The following Northrop people retired during the months of August and September:

Tom Ames, Plant Protection.
Ken Campbell, Data Processing.
Jean Deporter, Personnel.
Herbert Gryde, Subassembly.
Lindell Hagood, Plant Protection.
John Sherrill, Fuselage Assembly.
Ken Davidson, Value Analysis.
Raleigh Gately, Edwards Quality Control.
Tom Kennedy, Flight Support Operations.
Mal Mountain, Personnel services.
Frank Poelking, San Antonio District office.
Hayden Ratliff, Advanced Production.
Laurence Rice, Contract Administration.
Leo Richman, Management services.
Gladys Silva, Food services.
Allen Tennis, Tooling and Fabrication.

Paul Crews Made Norair I-R Director

Paul H. Crews, former assistant director, Industrial Relations, has been appointed director of that section, it has been announced by Thomas L. McCarthy, manager, Administration. Mr. Crews, who has been at Norair for seven years, replaces former Industrial Relations Director John B. Clark, who retired on October 18.

A resident of Inglewood, California, Mr. Crews, 49, was educated at the University of Alabama where in 1940 as an honor student and distinguished military graduate, he received his



PAUL H. CREWS

bachelor of science degree, majoring in general business.

He joined the United States Army and served throughout the entirety of World War II. Later, during the Korean conflict, he re-entered the armed services as a member of the United States Air Force and served six additional years. He received the Bronze Star Medal and distinguished unit citations. His military service includes a tour at Headquarters USAF, Washington, D.C., and participation in campaigns in the Middle East, Africa, England, and continental Europe during World War II.

He concluded his service in the rank of colonel.

Civilian positions he has held prior to coming to Northrop in-

For Space Geology



GRANT TO UNIVERSITY OF SOUTHERN CALIFORNIA

Northrop Space Laboratories' Vice-president and Assistant General Manager Roy Jackson, at right, and Dr. J. T. Thomas, director, Physical Sciences, center, present \$9000 check to Dr. William H. Easton, chairman, USC Department of Geology, as part of Company's sponsorship of the University's new X-ray diffraction laboratory. Joining with Northrop in financially helping to advance USC's physical science capability were the National Science Foundation and the Ford Foundation. The University also contributed with campus facilities and funds from its own treasury, thus creating a four-way effort.



EQUIPMENT INSTALLED—Here USC's Assistant Professor of Geology Vernon A. Taylor; NSL's Dr. Emanuel Azmon, lunar geology scientist, Space Physics and Chemistry Laboratory; and Dr. Milton C. Kloetzel, dean of the USC Graduate School, plan typical X-ray diffraction shake-down run wherein earth and planetary minerals will be precision analyzed through the nature of their atomic lattices. Laboratory, on the second floor of the USC Hancock building, becomes a part of the school's rapidly growing land, marine and space geology department.

Configuration Reports

(Continued from Page 1)
Air Force T-38/F-5 agencies throughout the free world.

Data and information processing was Norair generated by utilization of a new and unique computer program and logic.

Successful publication, of OACII and CSAR, according to Mr. Xifo, was made possible by the splendid cooperation received from the many divisional agencies participating.

clude business managements for S. R. Batson Construction Company and for Addressograph-Multigraph Corporation, both of Birmingham, Alabama.

He is a member of the board of directors of NORAD.

Mr. Crews and wife Nancy have three children; Paul, jr., 16; Radford, 13, and Janey, 6.

Mrs. Crews was an original member of the WASPS (Women's Air Force Service Pilots) and has over 1200 hours in fighters and light transports. She is presently schooling for a renewed commercial and instrument license at Hawthorne Field's Bates Aviation.

"We wish to express appreciation to Product Support, Materiel, Quality Control, Maintainability, Manufacturing Program Planning, and Manufacturing Control," Mr. Xifo said. "Without their team assistance, our commitments to AFSC would have been most difficult to achieve."

The Air Force configuration management concept was originally developed for use in missile weapon systems. The T-38/F-5 application is one of the first aeronautical systems programs.

Basic purpose of Configuration Management is to provide formal procedures for which a uniform system of configuration identification control and accounting is established and maintained for all deliverable elements of a weapon system.

Elements of the system as applied to the T-38/F-5 include the airplane itself, AGE (aerospace ground equipment), MTU (mobile training units), handbooks, and GFAE (government furnished equipment).

See Northrop Norair News story, March 11, 1964.

This coming Saturday, October 24, is United Nations Day and will be so observed by all member countries.

Northrop Corporation joins in this observance and proudly supports the responsibilities of our nation in helping to maintain world peace through this great organization.

Our F-5 global fighter, now coming off the assembly lines for delivery to our friends and allies overseas, will give us additional pride on this day. It is our personal contribution to world freedom and the sovereignty of man.

THOMAS V. JONES

*Chairman and President
Northrop Corporation*



The Secretary-General's Message

All peoples of the world, whatever their way and conditions of life, their colour or their beliefs, have their legends—varied in form, but similar in substance—about the struggle of good with evil. Such legends are usually imbued with dreams of a golden age and with sublime ideals. There can be few of us who do not still remember legends and tales of this kind which we heard or read in our childhood or youth, and who did not dream of becoming magicians and bringing happiness to men.

But real life has always been harsher than these dreams. The world has suffered natural scourges alternating with bloody wars; men have been plagued with diseases, and many have gone hungry or suffered other privations. Only recently the world was convulsed by the Second World War, a war whose horrors are still fresh in our memory.

Are men doomed to go on being the victims of such scourges? Must we resign ourselves to believing that, as things have been, so they will be? No, certainly not!

Man's reason has always prevailed in the end. Reason has taught man to create, and raised him to the highest level of de-

velopment. Man has learned to master nature, to create priceless material and spiritual riches, and to lay the foundations for all to enjoy unprecedented material well-being. And reason must lead man to renounce war and to put an end for all time to violence and injustice in the world.

Nineteen years ago, after the most bloody and destructive war in history had come to an end, the United Nations was founded for these very purposes. To save succeeding generations from the scourge of war, to establish conditions for universal justice and to provide decent conditions of life for all peoples—these were the lofty purposes laid down in the Charter of the United Nations. They are not the dreams of an idealist nor the fantasies of legend, but fully realistic even if difficult tasks. The present generation must clearly understand all these aims and actively prepare itself to strive for the realization of these goals.

That is why I appeal to all people, on this United Nations Day, to dedicate themselves to the sublime cause of giving reality to the ideals of the Charter; I appeal to them to work for the triumph of peace on earth and for the happiness of mankind.

U THANT
Secretary-General



RIDES WANTED

7 a.m. — 3:45 p.m.

GREENLEAF & ARTESIA BLVD., No. Lona Beach. Ina Irene Jones, ext. 2133, NE 5-0309.

7:30 a.m. — 4:15 p.m.

CRESCENT & HOLDER, Buena Park. Glenn Inale ext. 567, 714-828-7942.

8 a.m. — 4:45 p.m.

ROSECRANS AVE. & 139TH ST., Hawthorne. Kay Duenas, ext. 2123, 679-6285.

4:45 p.m. — 1:15 a.m.

HIGHLAND PARK, OFF PASADENA FWY., Highland Park. Lawrence R. Goodwin, ext. 1942, 2075. CL 7-6110.

RIDES OFFERED

7 a.m. — 3:45 p.m.

SPRING & VALLEY VIEW, Buena Park. Keith E. Flaudina, ext. 1310. TA 8-0746.

7:30 a.m. — 4:15 p.m.

CRESCENT & HOLDER, Buena Park. Glenn Inale, ext. 567, 714-828-7942.

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

MERRY-GO-ROUND, child's, 4-seat, needs minor repairs & paint. \$19. NE 2-7610.

HOUSE, 2-bdrm., attached gar., fenced yard, 1 bath, \$17,250. DA 9-5718.

STAUFFER TABLE & timer, \$85. OS 6-2162.

BICYCLE, Raleigh, racing-type, touring equipment, used 5 or 6 times. \$65. PL 7-7911.

AUSTIN-HEALEY, Le Mans, 1955, 4-cyl., 4-spd. & o/drive, \$825. FR 1-2207.

LOT in Apple Valley, 100'x200.81', Ramona Ranchos, Unit 1, Tract 6118, \$5000. 371-4594.

HO TRAIN layout, cars, enq. & table w/extras, \$25 or best offer. 371-6775.

LAWNMOWER, power, \$15. 672-5578.

FORD, 1958 convert. new top, radio, p/b, p/s, interceptor enq., \$375. DA 9-0314.

ELECTRONIC FLASH, Ultrablitz Monojet II w/Nicad rechargeable battery & charger, ac cord & 40-watt-sec. power, \$35. GE 1-4233.

TV, 21" RCA, \$35. PL 7-4305.

REFRIGERATOR, Coldspot w/freezer, 11 cu. ft., auto. defrost, \$50. FR 5-8972.

VOLKSWAGEN, 1961, radio, sunroof, \$1200. FR 2-5367.

METROPOLITAN, 1960 h/top, r/h, 30 mpa, \$475. TE 3-2512.

SHOTGUN, 16-ga., Ithaca model 37, pump gun, 10 boxes of shells, \$75. FR 2-3878.

MONZA, 1962, low milage, 4-spd. shift, \$1500. 676-5972.

TV, 17" Philco, walnut cabinet, \$50. 327-3344.

HONDA Dream 250, 1964, 4400 miles, \$525. OS 6-5304.

FALCON, Ranchers, 1961, auto. trans., r/h, new tires, brakes, battery, \$750. OR 7-2448.

DINETTE SET, Formica-top, oak table, 6 chairs, \$30. 377-3105.

HOUSE, Torrance, 3-bdrm., 1 1/2 baths, paneling, screened patio, blockwall fence, \$24,000. FR 1-4887.

OLDSMOBILE, 1961 super 88 Holiday sedan, p/b, p/s, r/h, \$1600. OS 5-5067.

HOUSE, 3-bdrm., 1 1/2 baths 150'x50' lot, close to schools, 5 min. to Norair, \$26,000. 675-6721.

SLIDE RULE, Pickett, model 803ES, w/leather case, \$15. PL 5-3101.

OLDSMOBILE, 1963, convert., p/b, p/s, factory air cond., \$2895. 943-1737.

PLAYHOUSE, 6'x8', child's, folding table & 4 chairs. \$100. TE 1-2973.

HEADBOARD, full-size, white w/book-end, frame, box springs & mattress, \$25. 370-4444.

RANGE, O'Keefe & Merritt, \$75. 426-3013, 320-5982.

CHEVROLET, 1964 convert., 220-hp w/ auto. trans., p/s, p/b, w/s/w, other extras, \$2500. DA 4-4845.

TRAINS, HO, lots of track, enq., transformers, cars, layout, scenery, etc., \$100. 326-9341.

PUPS, boxer, to good home, \$10. FR 4-1790.

CHEVROLET, Impala, 1959, 2-dr. h/top, p/s, p/b, Poweralide, w/s/w. \$1095 or best offer. 679-8583.

CORVETTE, 1959, 5000 mi., 301 cu. in., cam, lifters, \$1900. 675-0710.

PLAYPEN, Baby Line, Nylon net, \$15. 425-6996.

KITTENS, 3 Siamese, frost-points, females, 7-wks-old, \$20 ea. 714-521-0416.

RECORD PLAYER, 4-spd. w/radio, table model. Zenith, \$15. 371-9651.

PORSCHE, 1960, convert. D, many extras, \$2250. AT 8-0207.

LINCOLN, 1956, full power, r/h, \$300. 379-5994.

SOFA, modern, custom-built, 7', charcoal, \$125. DA 5-5245.

FORD Galaxie, 1959 4-dr. sedan, rebuilt V-8 enq., p/s, p/b, auto. trans., \$800 or best offer. 323-6004.

CHEST, 5-dwr., \$10. 675-6020.

TENOR SAX, Buescher, \$125. FR 4-6003.

AIR CONDITIONER, GE, 1-ton, 110-v ac, used less than 50 hrs., \$175. FR 5-2929.

HOUSE, 2-bdrm., completely redecorated, lae. R-2 lot near Northrop, \$17,900. DA 5-3724.

LIMIT-ONE ITEM

LOUNGE, contour w/foam rubber pad, \$25. OR 0-7361.

FISH AQUARIUM, w/stand, heaters & reflectors, \$15. OS 6-6390.

STATION WAGON, 1952, Chevrolet 283 cu. in. enq., recently o/hauled, \$195. ST 8-9709.

PICKUP, 1955 Dodge 3/4-ton, \$500. OS 6-1345.

TRIUMPH TR-4, 1963, roadster, r/h, w/s/w. \$2150. 645-5169.

VOLKSWAGEN camper, 1964 West Falia, tent & rack, 1500 enq., low mileage, \$2450. FR 5-1784.

MERCURY tudor, 1956, floor shift, \$300. Box 1701.

BICYCLE, boy's, 10-spd. Derailleur, \$30. PL 5-4497.

BICYCLE, boy's, 24", \$10. OS 6-2597.

STOVE, Wedgewood, \$35. PL 6-9415.

RANGE, aas, Western-Holly, 4-burner, auto., \$50. 754-8957.

BUICK, 1963 Riviera, factory air, all power incl. vents, tilt wheel, Cruise-matic, lae. radio, leather bucket seats, w/s/w, \$3895 or best offer. 671-3154.

WANTED TO BUY

TABLE SAW, 8" or larger. GR 7-7833.

CABIN CRUISER, inboard, between 20 & 25 ft., must have modern lines & be reasonable. NE 2-3489.

SEWING MACHINE, Singer, power. OS 6-7328.

FOR TRADE

ACCORDION, Universal, 120-bass, 4 changes, trade for stereo set. OS 5-8069.

RENTALS OFFERED

HOUSE, 2-bdrm., furn. w/aar. & enclosed yd., 1/2 block from ocean in Manhattan Beach, \$155 mo. FR 4-5028.

APT, 1-bdrm., cus. decorated, sub parking, pvt. deck & pool, \$100. 373-1143.

STUDIO APT, 2-bdrm., forced air heat, soundproof walls, carpets, provisions for campers & camp trailers, \$127.50 mo. 676-5532.

APTS, 2 & 3 bdrm., 2 baths, unfurn., pvt. patio, heated pool, rec. rm., garage, 1 mo. concession, \$150-\$195 mo. 370-4620.

APT, 1-bdrm., unfurn., pvt. patio, closed aar., hobby shop, Torrance, \$95 mo. DA 0-4058, FR 5-0867.

APT, unfurn., 2-bdrm., pool, patio, near El Camino. \$120. DA 9-5986.

APT, 2-bdrm., 1 1/2-bath, patio, 1 block from Northrop. \$130 mo. 676-6134.

FOR SALE OR TRADE

CAMERA, reflex, C2 Mamiya, 2 1/4 twin lens, 80-mm, 180-mm telephoto lens, fitted case, \$150 or trade for Grafex Press. 3 1/4" x 4 1/4". FR 5-5036.

YAMAHA YDS-2, 1964 250cc, \$550 or trade for 24' to 30' trailer. 676-1471.

ACCORDION, 120-bass, Castle, \$150 or trade for saxophone. OR 1-1660.

PORSCHE, 1954, super coupe, \$995 or trade for boat, 18' outboard. 371-3473.

Fun and Frolic with the NRC



THE MAKAHIKI—NRC annual picnic brought Northrop folk out in force for a day of fun, frolic and festivity. Highlight of this year's get-together is here best illustrated by bevy of beautiful Northrop daughters fetchingly adorned in grass skirts, leis, hibiscus flowers and all set for an island dance.



A WINNER — Prizes and surprises were plentiful during the day. Here picnic stalwarts from left, Mose Smith, Norair Maintenance; Jeanne Andrecht, Nortronics Travel Club commissioner; Earl Bird, Nortronics NRC president; and Bill Lewis, Norair NRC Special Events rep, make delivery to expectant Northrop jr.



LOOK MOM! NO HANDS!—Another headline, no less exciting, was sister's watermelon eating contest, here in desperate conflict as pre-teen young ladies get off their marks and go. Lack of hands was no handicap as photograph plainly shows. South Gate Park was merriment scene.



TAPA CLOTH TOWN — NRC booths form "gay way" and vie with softball, sack races, and hula girls for highest interest category. Travel Club Commissioner Dave Carney has time for photo greeting between brochure handouts and briefings on faraway places. Top attraction on the travel side was free weekends in Las Vegas.

M-C Social Event of the Year



ANNUAL DINNER DANCE — Norair Management Club celebrates the season with the traditional fall dinner dance held this year at the Airport Marina Hotel. Taking time out from dancing, clockwise around the table are Mrs. Milt Kuska, Roy Jackson, Mrs. Dick Horner, Mr. Horner, Mrs. Bob Gates, Mr. Kuska, Mrs. Jackson, Mr. Gates.



PREXY GREETING — Norair Management Club President Leo Sacks, welcomes Mr. and Mrs. Thomas L. McCarthy, as they arrive for the evening. Members gathered from Divisions and from Corporate office.



HONORED GUESTS — Colonel and Mrs. Charles W. Clark, Northrop AFPR, were honored guests at the affair. Here, clockwise, from left, Mrs. Clark, Dick Nolan, Mrs. Bob Lloyd, Colonel Clark, Mrs. Nolan, Mr. Lloyd, and Mrs. Bob McNamara. Music for the evening was furnished by Manny Harmon and his band.



A SPOT OF SHOP TALK PERHAPS?—Woody Woolwine and Dan Darnell, and seated from left, Mrs. Darnell, Mrs. Woolwine, and Mrs. Jerry Tully. M-C dinner dance is management social event of the year.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, November 4, 1964

HAWTHORNE

EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

NORTHROP SAVES \$14 MILLION

OVER 2000 SEPARATE ACTIONS DOCUMENTED DURING FISCAL 1964

Northrop's all out support of the government's cost reduction program achieved company-wide savings of over \$14 million for fiscal 1964, it has been announced by Thomas V. Jones, chairman and president.

Total savings reported to Washington was \$14,452,807.

The Department of Defense drive to buy more weapon systems, services, and materiel for the tax dollars provided by Congress got officially under way August 1, 1963.

The Company as a whole reported a total of 2096 individual cost improvement items, under the Cost and Management Improvement Program, Mr. Jones said.

Colonel Charles W. Clark, Northrop Air Force Plant representative, in receiving from Mr. Jones, official notification of the Company's audited CMIP results for the year said, "We in the Air Force office are no less proud than the people of Northrop for this excellent accomplishment. The \$14 million saved is obviously a total and dedicated effort and deserves the highest commendation."

"You have not only helped the Air Force in meeting its particular defense responsibilities, your savings will also benefit other government agencies who have placed contracts here—the Navy, the Army, NASA, the Atomic Energy Commission, and our allies overseas. I am sure I speak for all in extending congratulations and 'well done.'"

Norair, Nortronics, and Ventura Divisions, plus Northrop

Space Laboratories and the Corporate office, contributed to the record showing.

In the three government categories targeted for economies, savings scored most heavily in *Reduction of Operating Costs* where over 63 percent of the total was realized. Next came *Buying Only What is Needed* (Continued on Page 2)

New Method To Broaden Yule Giving

A bountiful Christmas for those in less fortunate circumstances is tradition with Northrop organizations and plans for the coming Yule season are now getting under way.

This year an informal Christmas Gift Program will seek to widen the distribution and broaden the scope achieved by the former adopted family program.

Approved charities will now be included, also there will be more concentration on Santa Claus gifts for the "tree" and "mantle-piece" than year around food and clothing supplies as in the past.

Chairman of this year's Christmas Gift Program is Ed Bates, Quality Control.

Christmas Gift Program works like this:

Packages, toys, et cetera, are gathered by personnel of a participating department, usually for (Continued on Page 3)



NORTHROP'S SHARE—Thomas V. Jones, Company president, gives official word to Colonel Charles W. Clark, AFPR, and Max Pellerin, Air Force chief, Contract Administration Division, that Northrop Corporation achieved \$14,452,807 savings during fiscal year 1964 in support of government cost reduction program. Carried out in all Divisions as part of the Cost and Management Improvement Program, drive was divided into three categories—Buying Only What is Needed, Buying at Lowest Sound Price, and Reducing Operating Costs. Colonel Clark joined Mr. Jones in congratulating all personnel for fine showing. (See story for details.)

F-5 Writes Dependability Records During Europe-Middle East Tour

Reliability and dependability records, considerably beyond normal operational requirements, were established by the Northrop F-5B supersonic tactical fighter during the recent demonstration tour of 12 countries in Europe and the Middle East.

The F-5B is now performing flight demonstrations at bases in the U.S. on another tour scheduled to end November 11.

Disclosing a statistical summary of the tour, Northrop Corporation International Vice-president Patrick W. Timberlake said the F-5 accumulated a total of 253 flights during the 82-day demonstration program.

The two-seat F-5B, which carries the same 6200-pound external armament load and provides approximately the same performance as the single-seat F-5A, was demonstrated in Belgium, France, Germany, Greece, Holland, Iran, Italy, Norway, Portugal, Saudi Arabia, Spain and Turkey.

The U.S. Department of Defense announced recently that Greece, Iran, Norway, Turkey, Korea, the Philippines and the Republic of China are programmed to modernize their air forces with F-5s. Personnel from some of these countries are already in the United States being trained by the U.S. Air Force's Tactical Air Command in the operation and maintenance of the F-5.

Citing the outstanding record

of reliability compiled by the F-5 throughout the tour, Mr. Timberlake pointed out that during the total of 253 flights, including ferry and checkout flights, only one scheduled flight was cancelled due to unexpected maintenance.

In 49 days of actual flight

Giant Scroll To Accompany 500th Talon

A giant scroll, bearing signatures and best wishes to the Air Force from Northrop Norair personnel will accompany the 500th T-38 Talon trainer when it goes into service with the Air Training Command.

Delivery date for this milestone airplane is just around the corner, having been set for the latter part of this month.

To most easily accomplish the signing task, letter-sized sheets with an accompanying all departmental memo from F. W. "Bob" Lloyd, vice-president and assistant general manager, Operations, went out to all supervision last week. There were over 700 separate mailings. All elements in the Division were covered.

The sheets are now being circulated. (Continued on Page 3)

demonstrations for governmental officials and military officers, the F-5 averaged 4.5 flights daily.

The aircraft performed eight flights in one day, seven daily on three days, six flights a day on 10 occasions, and recorded 17 five-flight days.

Maintenance for the F-5 was carried out by two three-man crews of Northrop maintenance personnel alternating in two shifts, and a technical representative of the General Electric Company which manufactures the two J85-13 jet engines which power the F-5. A flyaway kit of replaceable spare parts such as communications and navigation equipment, two spare engines and bench stock maintenance items were all the spare equipment accompanying the F-5. The spare parts were carried aboard a leased DC-4 type aircraft which also transported the members of the maintenance crew and other Northrop personnel.

The F-5 was supported by standard flight line aerospace ground equipment (AGE) in service at the various fighter bases it visited. In addition, a standard USAF jet engine starter cart and a liquid oxygen converter were also carried aboard the support aircraft for use when the F-5 was operated from air bases not normally used by military jet fighter aircraft.

During the demonstration program. (Continued on Page 3)



FINAL CMIP REPORT—Mr. Jones, and Division general managers Fred Stevens, Nortronics; Patrick W. Timberlake, International; George Douglas, Ventura; and Dick Horner, Norair and Northrop Space Laboratories, review fiscal year savings, grand total of which amounted to approximately \$1000 per employee. Over 2000 separate cost reduction actions were taken averaging one for every seven members of the force.

SAVINGS FOR FISCAL 1964

(Continued from Page 1)
with 26 percent. *Buying at Lowest Sound Price* accounted for the remaining 11 percent.

"It is gratifying to note that our \$14 million cost improvement represents a united and widespread effort by Northrop personnel," Mr. Jones stated. "Based on the average number of employees during the past year, the total amount saved was equivalent to approximately \$1000 for each man and woman in our work force. We averaged one documented instance of cost reduction for every seven employees."

"Norair people can well be proud of their efforts. All management joins me in extending congratulations for your splendid record of efficiency."

Mr. Jones further pointed out that the Cost and Management Improvement Program gained

strength as the year progressed. The CMIP savings for the first quarter fiscal 1964 totaled 334 audited documentations (separate valid savings actions) which amounted to \$2,289,812. Each subsequent quarterly report exceeded the previous one, both in dollars saved and the number of actions taken.

The fourth quarter report scored the highest with 683 items worth \$5,746,852.

"The constant acceleration of the program shown during the year indicates that we can look confidently forward to wider participation and more dollars saved in the current year," Mr. Jones said.

The success of Northrop's Cost and Management Improvement Program is the result of three powerful forces at work—top management implementation,

personnel grass roots participation, and all-level management support.

Although CMIP methods vary somewhat from division to division, the overall Northrop cost reduction program operates generally as follows:

A corps of CMIP coordinators serves to set up evaluation and reporting facilities and to give immediate attention and thorough processing of all savings ideas received. Savings ideas can either originate as a team development, a one man idea, or a management planned economy.

The CMIP coordinators in addition to their documentation work also maintain aggressive programs to give the widest possible plant orientation to aims, objectives and methods to be employed.

Theirs is the "workhorse" duty that keeps the program rolling, combats inertia, fights diminishing returns as the months go by. They also catalogue and allot department to department credit for savings realized.

Coordinators, often unheralded and unsung, make the program go. Behind every high value suggestion you will find the fine hand of a coordinator, say Division general managers. All agree that "you can't give a coordinator too much credit in Northrop's type of cost reduction program."

Another management feature is the establishment of a special suggestion award section to recognize all personnel who as individuals or as team members turn in ideas for cost improvement. This recognition extends to all who participate. Even ideas proved not feasible earn for their originator special participation lapel pins.

Individual ideas that stand the test of documentation and auditing earn the usual cash awards plus a distinctive CMIP trophy. Trophies consist of nameplates suitable for tool boxes or desks, decals and certificates.

CMIP was also made a regular part of the agenda for all management meetings, from those presided over by the general manager down through every level of middle management and supervision.

Here all men in authoritative positions are required to report CMIP weekly progress in their areas.

Personnel participation receives constant emphasis via the award and recognition program and through a sustained publicity campaign in all Company communications media, including divisional newspapers, bulletin boards and word of mouth. Regular briefings are also held.

Another productive CMIP tool is the Value Engineering-Value Analysis processing system as conducted in technical, manufacturing and materiel areas where Company products and what goes into them come under closest cost scrutiny.

Company finance, administrative and contract people also perform in-depth CMIP studies of their own functions such as overhauling all forms, scrutinizing reports as to necessity and distribution, verifying and documenting savings reports, and formulating goals and savings targets.

No single Company element or function is too small or too remote to escape the spotlight of CMIP attention.



FIRST EDITION—First edition of single source safety manual is now ready for distribution to operating management and supervision. Shown after final review from left are Bill Parker, chief, Plant services group; John Breneman, director, night Operations; and Lee Johnson, chief safety engineer. Manual is compilation of Division safety rules and directives, plus information from governmental codes and health association standards.

"Single Source" Manual, New Norair Safety Aid

Newest Norair safety innovation is the single source "Safety Manual" now being issued by Safety and Fire Prevention branch to members of management and operating supervision. It joins in a long line of forward steps by which the Division hopes to achieve highest safety standing in Southern California industry. Immediate goal is the "Blue Ribbon" safety sweepstakes recognition for the current year.

Safety and Fire Prevention branch is a part of Plant services group, P. W. "Bill" Parker, chief.

The volume, looseleaf to provide for the constant changes that mark safety progress in the rapidly advancing aerospace world, is issued under the authority of Executive Bulletin 10-0, "Safety, Industrial Hygiene and Fire Prevention" signed by Corporate Senior Vice-President and Norair General Manager Dick Horner.

In issuing the manual, Mr. Parker stated, "The purpose of the new Norair safety manual is for guidance of supervisors and employees alike, and will help provide the Division with the fundamental prerequisites for controlling injuries."

"All who receive the manual are asked to review their present operations to assure compliance with applicable safety instructions. In addition it will furnish a day-to-day reference for guidelines of operating and management supervision in maintaining safety in individual organizations."

"When safety situations arise that are not covered in the manual and you feel they should be, please telephone the Safety and Fire Prevention branch with your suggestion. A safety engineer will visit you, gather the necessary data and prepare a new safety instruction or revise a current one."

All safety directives and instructions are contained in the manual plus appropriate information from Federal, State, County and City codes. In addition are published safety and health standards from the National Safety Council, from the Amer-

ican Standards Association, American Society of Safety Engineers and the American Industrial Hygiene Association.

The blue bound volume, distinctively marked with the emblematic green cross of safety, is supplemental to existing Safety and Fire Prevention Executive bulletins and Standard Practice procedures.

The safety manual will be on file in offices on the foreman and supervisor level and all personnel are invited to make use of the extensive information it offers when questions regarding safety fundamentals arise.

Tab lettered for easy reference, the manual is presently divided into six sections: safety rules,

LEUZINGER GYM OPEN FOR CAGE WORK

The Leuzinger High School gym is now open for NRC basketball practice.

Saturday mornings—9 a.m. to 1 p.m.

clothing and equipment, vehicle rules, equipment, material, and forms.

Some of the exotic headings include Working on/in Fuel Cells, Entering Tanks and Other Enclosed Spaces, USAF Airmunitions Letters, Handling of Magnesium-Thorium Alloys, Explosives—Shipping, Receiving, Handling, Storage and Disposal.

More routine headings: General Requirements for Personal Clothing, Employment Rules for Women, Eye Protection, Safety Clothing and Equipment, Use of Fire Extinguishers, Use of Compressed Air for Cleaning.

NORTHROP NORAIR NEWS

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CHARLES BRADFORD, Editor

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Nortronics' Research Park Wins L. A. Beautiful Award

An award citing Northrop Corporation's Research Park facility for its contribution to the beauty of the area through "outstanding landscaping and exterior maintenance" has been presented to Nortronics Division.

The award was made at a Los Angeles Chamber of Commerce honors luncheon at the Statler-Hilton Hotel.

Ross E. Miller, Nortronics Division vice-president, accepted the Los Angeles Beautiful Community Award. The Rolling Hills Estates site is both headquarters and principal research and development center for the division, which has facilities in Hawthorne, Anaheim and Massachusetts.

Northrop Nortronics was one of 40 firms and institutions honored by the chamber at the seventh annual awards presentation. The awards result from an extensive elimination process that begins with nominations from throughout Los Angeles County. From the hundreds of sites suggested, approximately 300 buildings are officially nominated. Lay judges visit the nominated plants

to compare over-all landscaping and good maintenance and harmony between grounds and structure.

The final 40 winners are selected by a screening process requiring several months.

Located near the summit of the Palos Verdes Peninsula, Northrop's Research Park site comprises approximately 100 acres overlooking Marineland of the Pacific and Catalina Island. Naturally landscaped to achieve an idyllic, campus-like setting, it offers a beautiful, peaceful environment for scientific research.

Its administration building and four laboratory units are randomly located in an atmosphere of rolling green lawns, rambling waterways highlighted by fountains and "miniature" gardens of olive and pine trees accented by monuments of Palos Verdes stone.

Somewhat in contrast to this setting is a white, domed observatory, where daylight studies of stars and planets are conducted to assist in the development of missile and spacecraft guidance and navigation systems.



NORTRONICS AWARD — Ross E. Miller, vice-president, Nortronics Division, receives Los Angeles Beautiful Community Award from Mrs. Rose Navarro, chairman of the Los Angeles Beautiful Community Awards Committee. The award honored the "outstanding landscaping and exterior" for Research Park in Rolling Hills Estates.

Neatest and Cleanest



SWEEPSTAKES WINNER—Organization 5517, Plumbing and Mechanical Subassembly, not only won the plant Good Housekeeping award for the month of July but also garnered sweepstakes awards for July-August-September quarter. In photo, O. P. Omley, director, Production Operations, and Denny Pointon, Quality Control general supervisor and Good Housekeeping survey team member, congratulate Jack McFall, general foreman, Chem Mill and Hydraulics and Earl Nickles, superintendent, Processing Operations, on receiving the double honor. Good Housekeeping awards are determined by ratings from team survey reports rendered by men from Safety and Fire Prevention and Quality Control.



TOPS IN G-H FOR AUGUST—Raw Stock Material Cutting, 5513, Mariposa, took plant good housekeeping honor for August. Larry Pieper, supervisor, Engineering Laboratory services, standing in for R. B. Jackman, Engineering Labs chief and chairman, Norair general safety committee, does honors in presenting trophy to Roy Prueter, 5500, superintendent, Fabrication Operations, and Ray Staley, 5513, general foreman, Raw Stock Cutting. Mr. Omley again extends congratulations.



SEPTEMBER GOOD HOUSEKEEPING—Receiving, also from Mariposa, wins top good housekeeping award for September. Here Mr. Pieper presents the plaque so testifying to Roy Strong, supervisor, while John States, chief, Warehousing, Traffic and Transport, at right, and Carl Hood, director, Materiel, third left, offer their praise for the neatest and cleanest at Norair for the month. Good housekeeping competition for October, November, and December is now under way.



Art, Photography, Sculpture

GRAPHICS 64 MOCKUP—Trial run scale model layout gives hint of what Northrop Recreation Club's Graphics 64 exhibit will hold in store at the Product Display building November 13, 14, and 15. Paintings, sculpture, photography, commercial art, materials and techniques of reproduction, silk screen methods, plus stereoscopic slide shows and motion pictures. The complete Graphic Arts story from raw materials to finished product and in the many mediums will be told and illustrated. Hours are from Friday, 7 to 10 p.m., Saturday, 1 to 10 p.m., and Sunday, 1 to 6 p.m. Refreshments will be served. Admission is free. All personnel, their friends, and neighbors are invited. Parking okay in Company lots. Product Display building is on Broadway, the first building east of the Engineering and Science center.

Christmas Program

(Continued from Page 1)

the benefit and enjoyment of a Northrop family beset with some misfortune. However, when such families have been cared for, groups may select an approved local charity organization to offer similar help.

Northrop families receiving Christmases through the program are carefully selected and screened by the Christmas Gift committee consisting of Chairman Bates; Hank Clark, Engineering; R. C. Howorth, Manufacturing; J. L. Jeffcoat, Northrop Space Labs; Gabe Sady, Product Support; Dwight Smith, Corporate Data Processing; John States, Materiel; and Marie Tully, welfare coordinator. Selection is made on the basis of need.

Departments which would like to form a Christmas Gift committee, with approval of their supervision, may sign up or seek further information from Marie Tully on extension 786.



CERTIFICATE OF COMPLETION—Jack Mannion, manager, Manufacturing Materiel, presents certificate of completion to Bob Lieber, general technical purchasing agent, Offsite Manufacturing, one of 26 men who participated in Harbridge House subcontract management course.

Subcontract Studies for Norair Management Men

Detailed whys and wherefores of subcontract management has been the subject of a recent 72-hour series of courses presented to key Manufacturing Materiel personnel.

Certificates of completion were issued to each member of the group by Jack Mannion, manager, Manufacturing Materiel department.

The purpose of the study was to instruct personnel in the management methodology as applied to the various types of subcontracts undertaken by the Division.

Three major elements were scrutinized: how to select a source; terms and conditions of subcontract negotiation; and how to assure compliance with subcontract terms and conditions.

ranking officers of the Supreme Headquarters Allied Powers Europe (SHAPE), Allied Forces Southern Europe (AFSOUTH), the U.S. European Command (EUCOM) and the U.S. Air Force Europe (USAFE).

The courses were arranged by Education and Training branch, Larry Walton, administrator, and conducted by Harbridge House, Inc.

Those taking the course were Messrs. Bakke, Bohling, Dennis, Flanagan, Gibilisco, Hayes, John-

Credit Union

Save or Borrow

Phone 617

ston, Kissel, Lee, Lieber, Likes, McHugh, Muller, Orcutt, Peterson, Sacks, Sellinger, Smith, Sturgill, Symmonds, Terrazas, Thayer, Thorpe, Van Dorn, Nelson, and Steiner, NSL.

Presently under way is an additional 80-hour series on the same subject for members of the Norair Contracts and Pricing department, Bob McNamara, manager.

T-38 Scroll

(Continued from Page 1)

culated from person to person for signature.

When all who wish to have signed, the sheets are to be returned without delay to Public Relations, 170-65.

Here they will be joined together to form a scroll.

The document is slated to be displayed in an honored place at ATC headquarters, Randolph Field.

Again the mailing location—Public Relations, Organization 170-65.

F-5 Tour

(Continued from Page 1)

gram 198 government officials and military officers flew in the F-5 with Northrop pilots. Included were the Minister of Defense of Norway, Dr. Gudmund Harlem, and the chiefs of staff of the air forces of Iran, Italy, Norway, Portugal and Turkey as well as



RIDES WANTED

7 a.m. — 3:45 p.m.

VERMONT & 228TH, Torrance. Fred Trujillo, ext. 2304, FA 8-5086. 2

SEPULVEDA BLVD. & MARBELLA AVE., Wilmington. Roy K. Nitta, ext. 2200. 835-6097. 2

ORANGE & 37TH ST., Long Beach. G. J. Grummer, ext. 2574, GA 4-6383. 2

8 a.m. — 4:45 p.m.

KORNBLUM & ROSECRANS, Hawthorne. Kay Duenas, ext. 2123. 679-6285. 2

EUCLID AVE. & GARDEN GROVE BLVD., Garden Grove. Jerry M. Evans, ext. 1338. JE 4-3369. 5

RIDES OFFERED

8 a.m. — 4:45 p.m.

EUCLID AVE. & GARDEN GROVE BLVD., Garden Grove. Jerry M. Evans, ext. 1338. JE 4-3369. 15

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

REFRIGERATOR. Hot Point, std. size, 15-yrs-old, \$50. OS 9-1343. A

BOAT, 1962 Glasspar Citation, 75 elect. Evinrude, 7 1/2-hp., Amer. trailer, \$1700. 323-3488. A

BICYCLE, 10-spd. Derailleur, Aquila, good tires & brakes, \$60. 322-5544. A

BUICK Skylark, 1962, 2-dr. r/h, p/b, p/s, w/w, auto. trans., \$1940. 645-5169. A

TYPEWRITER, port., leather case, Olympia Splendid, \$40. 674-2060. A

TELEVISION, RCA 8" portable, \$35. ST 8-9709. A

RECORD PLAYER, 3-spd. w/radio, console, Spartan, \$15. 371-9651. A

POKER TABLE, light oak, octagon shape w/poker chip trays, \$35. PL 7-4305. A

DRAPERIES, custom-made, light green, beige, \$50. FR 5-2929. A

END TABLES, set w/matching lamps, \$10. NE 2-3489. A

CLOTHESLINE POLE SET, iron T-shaped, \$5. OS 6-6390. A

TENOR SAX, Buescher, \$125. FR 4-6003. A

CHEVROLET, 1957 2-dr. h/top, new paint, auto. trans., \$700. EA 2-0294. A

MERCURY convert., 1962, full power, \$1750. EX 8-0329, EX 7-8849. A

CHEVROLET Impala, 1962 2-dr. sp. coupe, auto., r/h, p/s, \$1700. 323-2746. A

TEMPEST, 1963 convert., 326 ena., V-8, p/s, \$2100. 944-3123. A

CHEVROLET Impala, 1958, p/s, p/b, w/w, \$800. DA 6-4050. A

MONZA coupe, 1961, auto. trans., r/h, \$800. FR 5-5036. A

COFFEE TABLE, antique white, 7'x2', solid oak, \$75. FR 2-1945. A

LOUNGE CHAIR, Naugahyde, black, \$85. DA 5-5245. A

CRUISER, 20', alased, 75-hp Evinrude, bait tank, trailer, \$1825. FR 4-2188. A

COOLER, water-type, \$30. OS 6-6962. A

HONDA, 1963, 150, low mileage, \$400. 473-6694. A

PLYMOUTH, 1954 station wagon, 2-dr., r/h, Hy-drive, \$350. 370-3324. A

WEIGHTS, barbells & dumbbells, rubber coated, 110 lbs., comp. body building instructions. \$25. SP 2-1902. A

PUPS, miniature dachshund AKC reg., \$50-\$60. OS 5-8414. A

MOTORCYCLE, Puah-Allstate, 250 cc, 1961, comp-type, helmet, \$250. 328-3777. A

PROJECTOR, Aarus model 300, 35-mm w/carrying case, Aireaupt slide changer, 54 slide maas., \$60. PL 3-4753. A

STAUFFER TABLE & attachments, \$75. OS 6-2162. A

TR-3, 1960, rdstr., w/w tires, \$1250. Box 1801. A

COIN collection, pennies, 102 rolls, from 1910-1964, 25% discount, \$390. DA 6-5558. A

BAR & stools, walnut, \$30. 670-8993. A

STERLING SILVER, 5-pc., coffee-tea service, plus huac tray, \$750. 375-7038. A

FOR SALE

PICNIC TABLE, portable w/seat, \$15. 675-1982. A

CORVAIR MONZA, 1964 2-dr., w/w, radio, auto. trans., 110-hp, \$2095. 802-495-5697. A

FIAT, model 1100 4-dr. sedan, 4-spd., new tires, \$325. EX 4-8641. A

TRAILER, 35' Fleetwood, 30' screened patio & awning, air cond., \$1800. 941-5240. A

VOLKSWAGEN station wagon, 1622, \$1500. GR 7-7833. A

SEWING MACHINE, port., Singer, Slant-O-Matic model 403 table, \$200. FR 7-2294. A

FLASH UNIT & flash bulbs, Sears folding B-C flash gun & 10 doz. #5 flash bulbs, \$10. GE 1-4233. A

SUITCASE, brown, 21"x14"x7", man's, \$9. 679-1992. A

BICYCLE, 24", girl's, lightweight, coaster brake, \$20. FA 8-3306. A

FORD V-8 Tudor, 1947, \$40. OS 6-1018. 327-4519. A

BMW 700 sport coupe, 1962, dual carbs., 35-mph, 46-hp, \$700. 344-9657. A

TR-4, 1964, r/h, w/w, 14,000 miles, \$2395. DA 3-5029. A

FORD, 1957 9-pass. country sedan, r/h, w/w, auto. trans., T-Bird ena., \$395. PL 6-0015. A

CORVAIR MONZA, 1962, good tires, 4-spd. trans., \$1450. 676-5972. A

PIANO, baby grand, Kimball, \$375. Box 1802. A

CEMETERY LOTS, 2 front, Inglewood Park, Avalon tract, \$1800. Box 1803. A

COFFEE TABLE, walnut, Danish modern, size 30"x30", \$20. 377-3105. A

PORSCHE coupe, 1960, 1600 super, sun roof, \$3000. 377-5879. A

COT, folding-type, \$10. OR 8-0250. A

PUPS, German shepherd, AKC reg., \$125 & up. 378-1307. A

BEDROOM SUITE, walnut, vanity w/lac. mirror, bench, chest, foam mattress & springs, \$125. FR 5-8778. A

MOTOR for washing machine, \$5. 379-1049. A

RAMBLER station wagon, 4-dr., 1961, \$975. 679-8426. A

LIMIT-ONE ITEM

PONTIAC Le Mans, 1964, radio, p/s, 8000 miles, \$2200. 789-1918. A

ENCYCLOPEDIA, Grolier, Book of Knowledge, Lands & People, 1960 ed., year books, \$100. TE 1-2973. A

CHEVROLET Impala, 1959 2-dr. h/top, Powerglide, p/s, p/b, w/w, \$1095. 679-8585. A

KARMANN Ghia, 1963, less than 10,000 miles, \$2100. 371-8939. A

WATCH, men's 19-jewel Hamilton, \$40. 671-9269. A

CHRYSLER, 1961, 3-spd. stick, traction masters, \$1700. 757-5455. A

ZEPHYR 6 1955, stick, \$450. EX 1-2040. A

BICYCLE, girl's 26", \$15. PL 5-4497. A

PIANO, Kimball upright, \$125. DA 9-1958. A

CHAIR, occasional, upholstered, orange, \$35. OR 8-0766. A

TRAIN, elec., American Flyer, switches, 8 action cars, unmounted track, big transformer, \$50. FR 8-2810. A

FORD convert., 1958, p/s, p/b, new top, \$325. DA 9-0314. A

VOLKSWAGEN, 1962, sun roof, \$1490. TE 3-4191. A

TABLE SAW, 8", arbor & blade, \$25. 675-5077. A

ORGAN, Lowrey Holiday deluxe elect. w/Leslie speaker, 2 keyboards, 13-note pedalboard, 1-yr-old, fruitwood finish, \$750. OR 1-2776. A

TIRE, Continental blackwall, 5.60x15 Volkswagon, \$25 & your old tire. 757-7637. A

HOUSE, 2-bdrm., completely reded., lae. R-2 lot, 5 min. to Northrop, \$17,900. DA 5-3724. A

DOOR, Modernfold, grey leatherette, 30" wide, \$10. OR 0-4702. A

TV, RCA, console, 19", w/cabinet, \$5. 835-1031. A

PUP, pom., female, 9-wks-old, champ. background, \$75. 676-9670. A

WASHER, Kenmore auto., 10-yrs-old, \$30. GR 2-2818. A

COMET, 1961, 4-dr. wagon, r/h, new w/w, \$980. FR 6-1531. A

HOME, 4-bdrm., 3-bath, 2050 sq. ft., fireplace, ocean view, near schools, Palos Verdes Estates, \$47,000. 373-1143. A

WANTED TO BUY

PROJECTOR, Technicolor, 8-mm, model 800. 805-947-3537. B

PLAY GYM, children's, swings & slide. FR 9-3134. A

FOR TRADE

TRUCK, 1955 Dodge flatbed, 1-ton, will trade for used pickup or take over pymts. on newer pickup. 327-4209. C

FREE (to be given away)

BLOODHOUND, AKC reg., male, to good home w/fenced yard. FR 4-2915. D

JARS, 50 1-at. Mason, OR 8-1692. D

RENTALS OFFERED

DUPLEX, unfurn., 2-bdrm., disp. closed gar., water pd., 8 min. to Northrop, \$115 mo. PL 4-1964. E

DUPLEX, 1-bdrm., unfurn., adults, util. paid, aarage, no dogs, \$85. FR 4-0143. E

APT, 3-bdrm., furn. or unfurn., avail. Nov. 11, 20 min. to work, \$115-\$130. TE 1-3737. E

APT, furn., single w/carport, in Playa del Rey, \$100 mo. EX 1-7969. E

APT, bachelor, furn., ground floor, walking dist. to Norair, \$90 mo. 679-1358. E

HOUSE, 1-bdrm., Hawthorne & Century, front of lot, water & trash pd., \$89.50 mo. DA 3-4116. E

APT, 2-bdrm., fenced play yard, near schools, Northrop, \$100 up. OS 5-6032. E

HOUSE, 2-bdrm., Hawthorne, fenced yd., trash & water pd., avail. Nov. 14, \$115 mo. OS 6-5921. E

APT, 2-bdrm., furn., 4 short blocks to Northrop, \$120 mo. TE 3-2512. E

HOUSE, 2-bdrm., near Northrop, \$115 mo. OS 5-9695. E

APT, unfurn., 2-bdrm. closed gar., pool & patio, 1 mo. free rent, near El Camino, \$120 mo. DA 9-5986. E

HOUSE, 2-bdrm., unfurn., aar., enc. yard, block from ocean in Manhattan Beach, \$110 mo. FR 9-1357. E

PERSONALS

WE wish to express our deep appreciation to all people of Northrop for the kindness & aid during the illness & death of our beloved husband & father, MARTHA, DENNIS & MICHAEL MONCRIEF. L

OPENING in A & E Flying Club, 5 airplanes & 50 members. 324-2992. L

WE WISH to extend our sincere appreciation to our friends at Northrop for the many expressions of kindness during the recent illness & loss of our husband & father, John C. Randall. Carol & Mike Randall. L

OBTAIN private pilot's license as co-owner in late model aircraft. 377-3810. L

FOR SALE OR TRADE

TROMBONE, Cleveland Superior, \$90 or trade for golf clubs, men's, or power lawnmower. 375-9657. M

MERCURY, 1951 club coupe, \$50 or trade for clothes dryer, elec. 329-9484. M

Itinerary For Hawaii Trip Now Complete

The NRC Travel Club has now completed the itinerary for the Hawaiian holiday trip, it has been announced by Dave Carney, commissioner. Copies are available at Personnel Activities, Plant One; Personnel office, Nortronics Johnson building, and from Kay Cribbs, Public Relations, Corporate office.

Itineraries can also be obtained at personnel offices at Ventura and other company facilities.

Reservations will be awarded on a first come — first served basis, says Commissioner Carney.

First briefing on the complete holiday package is scheduled for November 18 at the NRC Clubhouse, at 8 p.m., a Wednesday evening. There will also be a motion picture on Hawaii and a speaker to answer any and all questions.

The tour which will be made by Pan Am jet will cost \$358. Children under 12 pay \$258.

Some of the highlights include: Christmas dinner at the world famous Volcano House and a look at the Kilauea Crater.

Kalapana Black Sand Beach in Hawaii National Park.

An authentic Hawaiian luau with exotic island dishes.

Outrigger canoes.

Surf boarding, and much more.

NRC Model Airplane Club Holds Rubber Power Meet

The NRC Model Airplane Club held its first outdoor rubber power contest last week on the El Segundo sand lot, it has been reported by J. E. Doyer, commissioner.

The weather prevailed fair with a slight gusty breeze at ground level plus a rather steady northwesterly, which wind was at just the right altitude for the Wakefields to run out of power then soar. Highest time in this class proved to be just under five minutes, to the dilemma of the "pilot." The judges timed the models to touchdown, or, in the case of the Wakefields, out of sight. Out of sight was just behind a high slope.

All agreed to a rubber power

contest every month. Planning and date are to be set at next meeting to be held November 19, 7:30 p.m. at the Clubhouse. This meeting will be trophy night with honors going to the following El Segundo sand lot winners:

Junior scale—David Doyer, first and third; Don Hicks, second.

Senior open class 2—Jean McGrew, first; Kevin Flynn, second; and Earl L'Homme, third.

Senior scale — Jack Headly, first; W. E. Powers, second; Jim Richardson, third; and Don Hicks, fourth.

Senior class 1 flying — Ronald David, first; Jean McGrew, second; and Dick Hicks, third.

Thanks go to the Model Craft Hobby shop for contributing one gallon of model airplane fuel which was won by Jack Headly.

LUFKIN TOOL DEMONSTRATION HERE TOMORROW

Norair Sears Tool store will again sponsor the annual Lufkin precision tool demonstration, it has been announced by Dick Pryor, general supervisor, Personnel Activities.

For the day shift the event will be held tomorrow, Thursday, November 5, in the Plant One east door parking lot. Time is 11 a.m. to 1 p.m.

The night shift show also tomorrow will be inside in the Plant One high bay numerical control machine area, directly in front of the Safety store. Time is 7:45 to 9 p.m.

The demonstration will be conducted by Lufkin factory reps. Many new tools will be on display.

NRC TO START NEW DANCE CLASS SERIES

Anyone for the light fantastic?

Or how about something more "today" such as the samba or the mambo or the western swing?

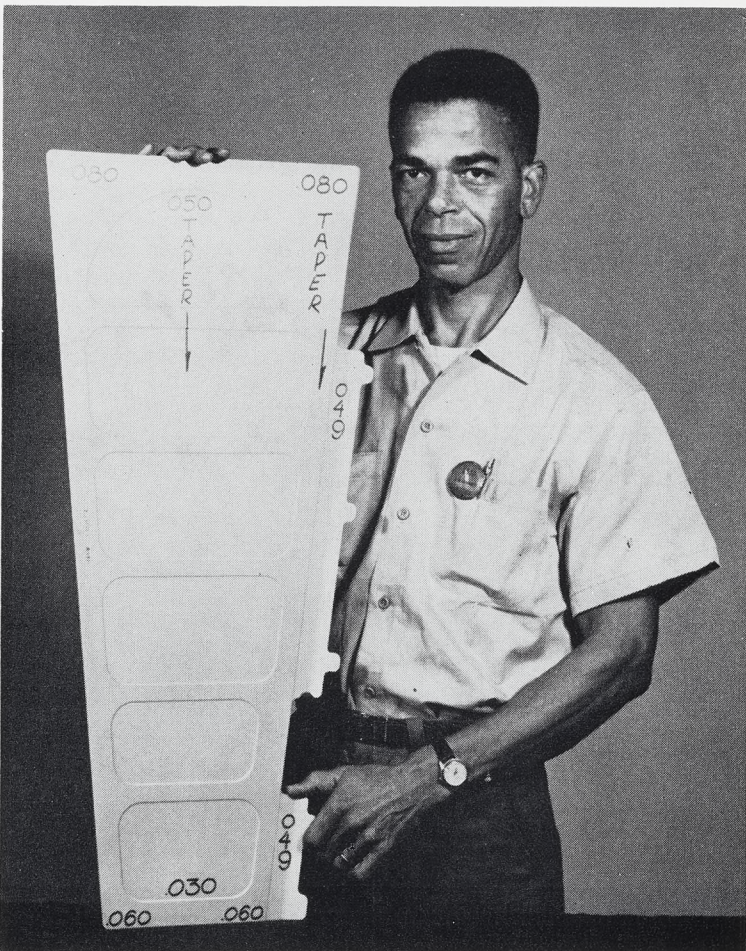
The NRC Dance Club will start a new series of instructions on Thursday, November 19 at the Clubhouse, advises Mel Allbrandt, commissioner.

There will be two classes, both taught at beginning level.

The first class meets from 7:30 to 8:30 p.m. for the western swing, and from 8:45 to 9:45 for the samba.

The second class meets from 8:45 to 9:45 for the samba and from 10 to 10:45 for the mambo.

\$\$\$\$ For a Good Idea



SINGLE CYCLE — For Chem-milling T-38 wing flaps, a single cycle dip innovation brought a handsome Suggestion Award of \$232 to R. B. Kennedy, 5510, Chem-Mill and Hydraulics. Part, which has complicity of requirements including constant thickness areas and tapers, all to specific tolerances, formerly needed two separate operations. By rearranging immersion sequence, Mr. Kennedy eliminated one complete cycle. Time saved amounts to 28 minutes per ship plus much maskant. Quality was also improved. Award was one of the highest made during month of October. Foreman in 5510 is R. L. Kelly.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, November 18, 1964

HAWTHORNE

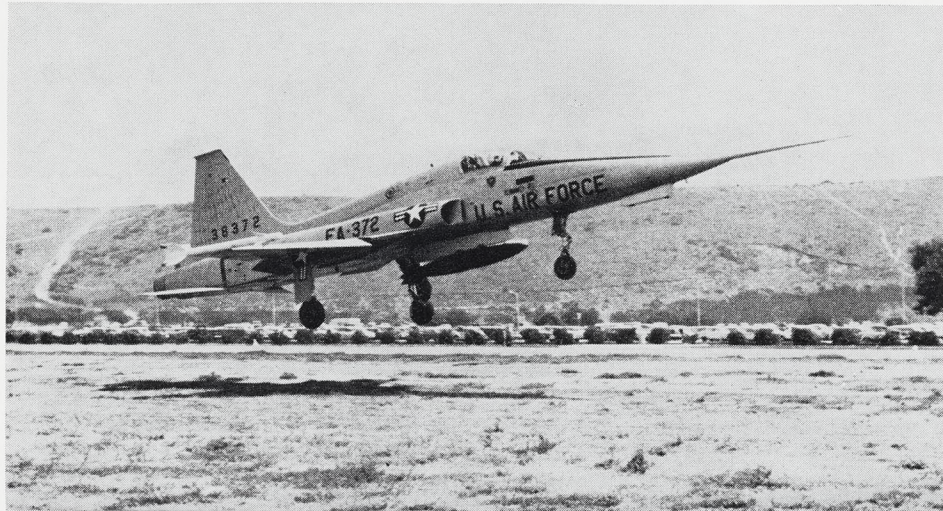
EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

F-5 FIGHTER SHOWS HOW IT'S DONE VIA SOD FIELD



NO RUNWAY, NO PROBLEM—A Northrop F-5A supersonic tactical fighter carrying a 2000-pound bomb and Sidewinder air-to-air missiles lands without benefit of runway during sod field tests near Los Angeles. F-5s can operate from dirt fields or steel plank runways close to forward battle areas. Norair Chief Test Pilot Jack Wells is in the cockpit.



WITH TIP TANKS AND TWO BOMBS—Here with two 750-pound bombs plus 50-gallon tip tanks, the F-5 takes off without benefit of runway. Tests were made in preparation for delivery of F-5As and F-5Bs to selected allied nations beginning in early 1965. Included will be Norway, Korea, Greece, Turkey, Republic of China, and the Philippines.

Norair Officers and Board Elected for Fiscal Year '65

NORAIID officers for this fiscal year 1964-65 as announced by the board of directors, George Gore, chairman, are Paul Wierk, director, Technical Administration — *president*; Marie Tully, welfare coordinator — *vice-president and secretary*; George Forbes, paymaster — *treasurer*; and E. L. Boren, supervisor, General Accounting — *accountant*, all from Norair Division.

NORAIID board of directors for this fiscal year consists of Mr. Gore who is Northrop Corporation secretary and assistant Corporation counsel.

From Norair—Paul H. Crews, director, Industrial Relations; Don Grothe, director, Accounting section; R. M. McNamara, man-

ager, Contracts and Pricing; Ben Trump, chief, Personnel Compensation and Education group; and Mr. Wierk.

From Nortronics—R. J. Barrett, jr., director, Financial Planning and Control; and Elmer Noonan, director, Anaheim Industrial Relations.

From Northrop Space Laboratories — Frank Smith, director, Industrial Relations.

NORAIID facility committees are located at Norair Hawthorne, Edwards, Palmdale; Nortronics Hawthorne and Anaheim; and Northrop Space Laboratories, Hawthorne.

Administrator is Marie Tully, Personnel Activities office, extension 786.

AT THE CAFETERIA

Thanksgiving Dinner
—All lunch periods—
Day and Night shifts

November 23 & 24

Waldorf Salad
ROAST TOM TURKEY

Cranberry sauce

Savory dressing

Whipped potatoes

Giblet gravy

Choice of vegetables

Rolls and butter

Choice of beverage

APPLE, MINCE OR

PUMPKIN PIE

\$1.25 tax included

UNITED CRUSADE HAS \$\$\$ GOAL IN SIGHT

Los Angeles County's giant charity drive, the United Crusade, with a target of \$20,700,000 is now in its final stages, according to Ernest J. Loebbecke, chairman of the Top One Hundred committee.

And indications are that the goal will be reached.

December 3 is the last day of the drive.

United Crusade is the largest appeal for health and welfare funds in County history.

The dollars collected will con-

stitute "one gift" in support of United Way and its practically all-inclusive group of Southern California charities, and the American Red Cross.

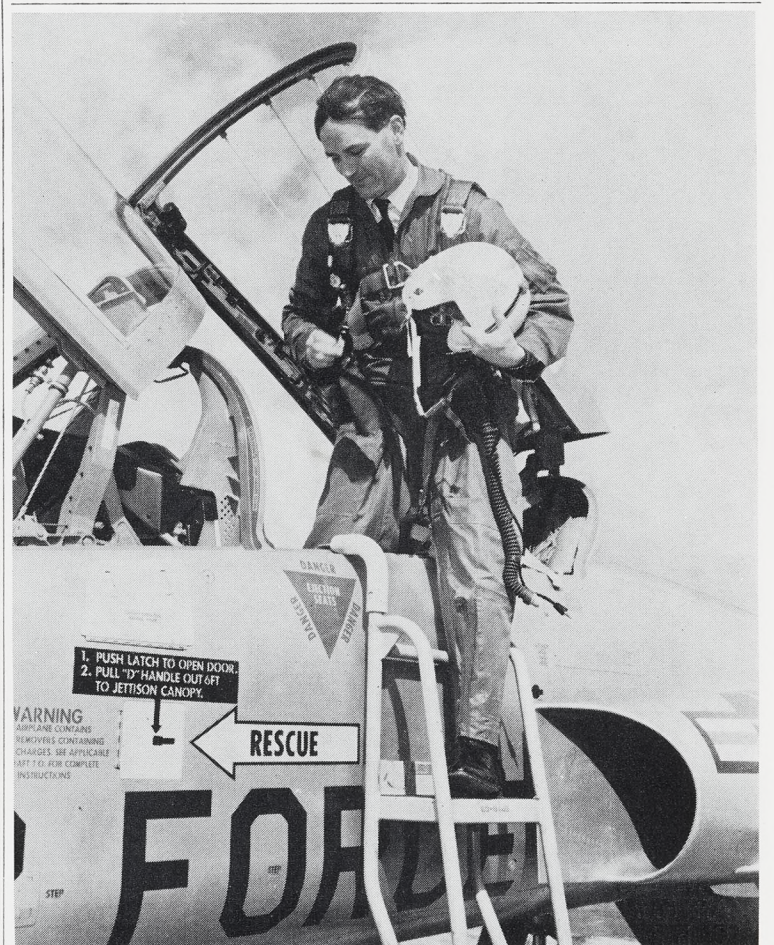
Northrop participation in United Crusade includes a share of funds collected via AID payroll deduction as well as Corporate cash donations, actual manpower help in the form of direct solicitation of other corporations and numerous active memberships on charity management.

(Continued on Page 2)

Spanish Aerospace Officials



FROM SPAIN—A Spanish evaluation team representing the Spanish Air Force, Instituto Nacional de Tecnica Aeronautica (INTA) and Construcciones Aeronauticas S.A. (CASA), recently visited Northrop facilities. Shown here at Norair's F5-A mockup are (in cockpit, l-r), Lt. Colonel Benjamin Sepulveda, chief of Training at the SAF Test Pilots School and D. Jose Maria Dorado, chief of Electronics Labs, INTA. Standing, from left, Manuel Alonso, Northrop consultant, Spain; D. Manuel Carballal, chief, Flight Test Instrumentation, INTA; Lt. Colonel Carlos Grandal, commanding officer, SAF Flight Test Squadron; D. Gonzola Fernandez Romero, chief, Test Flight Labs at INTA; D. Fernando Mexia, CASA; Lt. Colonel Guillermo Perez Del Puerto, director of Armament, Equipment and Flight Test Division, INTA; Captain D. Manuel de Vilches, chief, Instrument and Hydraulic Labs, INTA, and D. Juan Caballero of CASA.



DISTINGUISHED VISITOR—Lt. General Wilhelm Mohr, commander-in-chief of the Royal Norwegian Air Force, is shown in the cockpit of the Northrop F-5 fighter during a morning flight at Edwards AFB last Thursday. The distinguished pilot's four-day visit included conferences with key Northrop officials. (Page 2 for more Norway photos.)

UNITED CRUSADE \$\$\$ DRIVE

(Continued from Page 1)

strategy and planning committees.

Working on a county-wide basis:

William Larrabee, Corporate vice-president, Legal, is a member of the Major Corporations committee in the Aerospace Division of United Crusade.

Thomas L. McCarthy, manager, Norair Administration department, is a member of the Special Advanced Gifts team, a

lic information specialist, and Don Weaver, Nortronics Precision Manufacturing general supervisor, is chairman of United Way's Agency and Group Participation committee.

Also at Norair, Marie Tully, welfare coordinator and NOR-AID administrator, is a member of the executive committee and board of directors of the American Red Cross — Hawthorne-Lawndale branch.

This year's joint United Crusade—United Way and American Red Cross—campaign under the volunteer chairmanship of Harry M. Bardt, Bank of America, is a partnership of givers, services, and communities working together. The drive has enjoyed the full support, active interest, and leadership of organized labor, business and industrial leaders throughout Los Angeles County; AID-United Givers; Permanent Charities committee of the Motion Picture Industry; radio, television, recording and advertising charities and large in-plant employee giving plans.

Typical approved charities that will benefit are All Nations Boys' Club and Community House, Antelope Valley Association for Retarded Children, Boy Scouts of America, California Babies' and Children's Medical Center, Camp Fire Girls, Catholic Big Brothers, Cedars of Lebanon Clinic, Council of Jewish Women of Los Angeles, Damon Runyon Memorial Fund for Cancer Research, El Segundo Scout House Association, Episcopal City Mission Society of Los Angeles, Girl Scouts of the United States of America, HEAR Foundation, McKinley Home for Boys, Midnight Mission, Queen of Angels Clinic, Salvation Army, California Association for Health and Welfare, Child Welfare League of America, Travelers Aid Society of Los Angeles, USO — Los Angeles County, Woodcraft Rangers, Young Men's Christian Association,

tion, National League for Nursing, Western Conference of Community Chests.

Over 310 agency services in 160 communities will receive United Crusade funds.

At Northrop funds for AID and for NOR-AID, the Company's "own" charity, are handled through payroll deduction with signup time being conducted in August of each year. See Northrop Norair News, July 29, 1964.

DR. YAO TO BE PAPER REVIEWER FOR THE ASME

Dr. John C. Yao, member of Technical management, Structures and Auxiliary, has been named a reviewer by Applied Mechanics Reviews, a non-profit periodical published monthly by the American Society of Mechanical Engineers.

Dr. Yao will review papers in the fields of shells, buckling and vibration of solids.

Applied Mechanics Reviews is devoted to critical coverage of the international literature in the fields of applied mechanics and related engineering sciences.

Dr. Yao's own publications include, "Large Deflection Analysis of Buckling of a Cylinder Under Bending," journal of Applied Mechanics, December 1962. "Thermoelastic Differential Equations for Shells of Arbitrary Shape," AIAA Journal, February 1963.

"Dynamic Stability of Cylindrical Shells Under Static and Periodic Axial and Radial Loads," AIAA Launch and Space Vehicle Shell Structures conference, Palm Springs, April 1963. Published in June 1964 issue of AIAA Journal.

Dr. Yao received his Ph.D. from the Illinois Institute of Technology.

NORTHROP NORAIR NEWS

VOL. 22 NO. 19

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A NORTHROP CORPORATION PUBLICATION
NORAIR DIVISION

Published every other Wednesday

CHARLES BRADFORD, Editor

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Relationship Symbolized

CRYSTAL SYMBOL—Lt. General Wilhelm Mohr, command-in-chief of the Royal Norwegian Air Force, holds commemorative crystal bowl presented to the Royal Norwegian Air Force by Richard R. "Dick" Nolan, Corporate vice-president. The bowl was designed by the wife of Lt. General Fred Motzfeldt, RNoAF (ret.), former command-in-chief of the RNoAF. After the presentation last summer, it was put on display by General Mohr at his headquarters in Oslo.



FROM THE N-3PB TO THE F-5—The crystal bowl depicts northern Norway's bird rocks and sea birds on the front face. Also shown are two small fishing boats and a two-ship formation of F-5s. On the back face is a typical coastal steamer, the "Midnight Sun," a typical lighthouse, and the Northrop N-3PB seaplane, which was selected by the Royal Norwegian Air Force 25 years ago. General Mohr, his wife and several Norwegian staff officers visited Northrop facilities at Hawthorne and Edwards early this month.

HOLIDAY

All Norair Division and NSL facilities will observe Thanksgiving Day, Thursday, November 26, it has been announced.

Thanksgiving is a paid holiday.

The following day, Friday, November 27 is a regularly scheduled workday.

Paycheck distribution will be made to the second and third shifts after 3 p.m. on Wednesday, November 25. First shift checks will be ready after 8 a.m. on November 27.

county-wide activity engaged in solicitation of major personal contributions.

Marvin Beyrodt, a loaned executive from the office of Robert R. Miller, Corporate senior vice-president, is part of the United Crusade full-time team contacting companies who have 200 employees or less.

More southwest area help comes from Nortronics Division where Fred Stevens, Corporate vice-president and general manager, Nortronics, is chairman of the board of United Way, chairman of the United Crusade Advisory committee and chairman of the Fund Raising Management committee for United Way.

Dick Hoffman, Nortronics Public Relations, has been serving as a United Crusade campaign pub-

Safety Specs Save Sight



NEW WISE OWL—Michael A. Toche, T-38/F-5 Wing and Aft Fuselage, newest Norair member of the Wise Owl Club thanks to judicious wearing of safety glasses on the job. Mike was drilling a sheet metal part in drill jig using pneumatic drill. The drill broke and a portion of the shank fractured the right lens as photo shows. No harm done. Incident has been forwarded to the National Association for Prevention of Blindness where Mike now qualifies for membership.

Marie Tully Given Welfare Post

Marie Tully, former Norair assistant welfare coordinator, Personnel Activities, has been appointed welfare coordinator, it has been announced by Paul H. Crews, director, Industrial Relations.

She succeeds Mal Mountain who recently retired after 22½ years service.

Also, the board of directors for NOR-AID, has appointed Mrs. Tully NOR-AID administrator as well as electing her a vice-president and secretary of that organization.

NOR-AID is Northrop's "own charity" which cares for fellow workers should misfortune befall them.

Additional welfare responsibilities charged to Mrs. Tully include, chairmanship of Norair's AID chapter, Blood Bank chairman, Christmas Gift program coordinator, U.S. Savings Bond

sales coordinator, and employee financial counselor for attachments, garnishments, and NRC emergency loans.

Mrs. Tully who has been with Northrop since 1949 first came to the Company as clerk in old

Department 28 on the Flying Wing program.

She was educated at the St. Cloud Minnesota State Teachers College where she achieved her teaching certificate after three years study. Locally, she has attended El Camino College majoring in accounting.

In addition to teaching in Stearns County, Minnesota, and prior to becoming associated with Norair, Mrs. Tully served nine years with Montgomery Ward, her most recent assignment there being budget analyst, in the St. Paul regional office.

Her community activities presently number, membership in the Kiwanettes (Kiwanis auxiliary), Gardena; Belmont Women's Club Philanthropy committee (past chairman, two terms); executive committee, board of directors, officer and secretary of the Hawthorne, Lawndale branch, American National Red Cross.



MARIE TULLY

Blacksmith Shop Beginning For Norair Problem Solver

At the risk of being dated, long gone dated—. Now who admits to remembering about blacksmith shops? The sparks from the forge, the bell-like tones from the blows of the hammer, the smell of hot steel and burning coal, the *slap-slap-slap* sounds of the belt-driven drill press and grinder, the whine of the blower, horses patiently standing harnessed in the sun, waiting to be shod.

Boys, especially the younger fry, "hung around" the blacksmith shop.

It was a fascinating place. The smiths wore leather aprons, had knotty muscles, smudged faces, they chewed tobacco, and laughed

shop. He worked there.

Age 10. Pease, Missouri. Pop. 50. Mule country.

Frank fetched and carried. Pumped the forge. Held horses. Greased wagons. Sharpened scythes, sickles, and axes. Watched his father weld points on plowshares—.

"It was fusion welding even then," says Frank. "Get your fit. Get the metal white hot. Rush it to the anvil. Dust on your flux. Borax. This lowers the melting point. Fit the pieces together. Set it good with the hammer as it fuses," Frank relates. "We had gas welding. No arc in those days."

Frank was headed for the

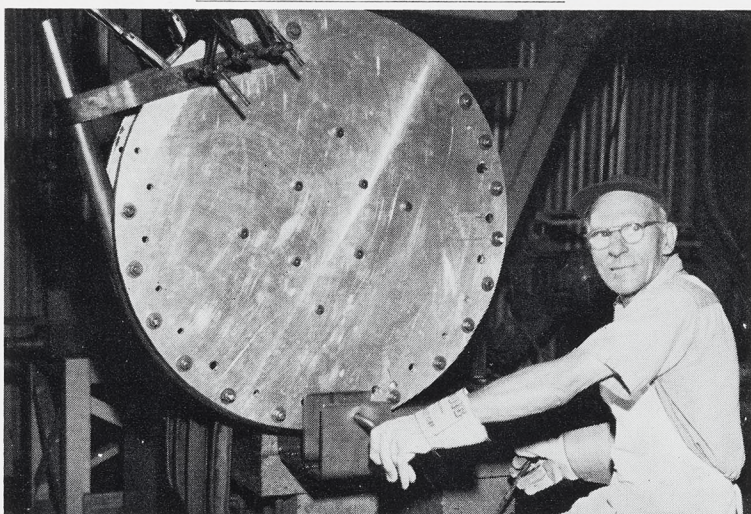
By Aerospace Reporter

loud, and cursed with exquisite fluency at the cold, at the heat, at the flies, at certain horses, and were always busy.

The do-you-remember test is—what boy recalls in vivid and painful detail stepping with barefeet on one of those hot steel "corks" which the smith cut from the shoe and surreptitiously tossed your way as he diverted your attention to a flight of geese overhead, or the girl with pigtails across the street?

Advanced Production's Frank Atkinson remembers. But Frank, a master shop man, a 20-year man, and right-hand problem solver in A-P didn't "hang around" his dad's blacksmith

smithy as a lifework. That is until one day he saw an airplane. World War I. Thinks it was a Newport fighter from a base nearby. The very next thing he was in the midst of an aeronautical correspondence course. "Studied the four 'design' factors of that time," said Frank. Horsepower and lift, horsepower and drag, horsepower and reserve, and another he can't remember. This was a long time ago. Nearly 50 years. Chicago came next and more school. The American School of Aviation and the Bud Morriss Aero and Motor School. Then on to Buffalo seeking his first aerospace job with a company called Curtiss.



PROBLEM SOLVER PAR EXCELLENCE—Frank Atkinson, 20-year man in Advanced Production Weld group, is known throughout the Division for his ability to cure production headaches wherever and whenever. He is shown here with his shop-made tube bender for engine stands.



TRIPLE BASKET—Frank, 67, hobbies in skating. This recent photo shows him and two young hopefuls doing the triple basket. Fellow workers in the shop call Frank the "Green Hornet" and with justification.

"Couldn't get a job," says Frank. "Not right away. I ran out of money and had to wire dad back in Pease. He sent me \$15 to tide me over. As luck would have it, I made out with Curtiss just as the money came. I sent it back. Never had to touch it."

When the war was over, Frank was one of the 18,000 out of 20,000 to be laid off. Dislocated by the armistice.

He went down state to Glenn L. Martin Company. And went to work. The averages were with him this time. He was one of two out of 30 applicants as aircraft mechanics that were hired.

At Martin he met such luminaries as John K. Northrop, Donald Douglas, George Stromple, Ross Elkins, Eric Springer, pilot. Frank was invited west by this group. "They were to start Douglas Aircraft," said Frank.

Another young man working at Martin was the late "Dutch" Kindelberger, the very same who established North American Aviation.

But Frank turned down the invitation to come west. Skating interfered.

"Kids back in that country learn to skate just like they learn to ride the surf here," said Frank. "In Missouri in the winter time all you do is sprinkle a vacant lot, and that night when the cold comes down there is your rink."

Frank, anticipating hard times in the airplane business, had decided to try Broadway—with a roller skating act. He did, and did quite well, getting moonlight bills for a year or two in the various Gotham vaudeville houses.

Warren G. Harding was president.

COMPETITION

The government needed a new bomber. Martin created a wood and cloth design and bid the job at \$38,000 a ship. Somebody beat us out," said Frank. "Another company bid the Martin design in at \$23,000 and went to work, hammer and tongs. Martin had to submit a new bid. We came back with \$18,000 and got to build a few of our own airplanes after all."

Time passed. Frank worked for Chance-Vought as chief inspector and Keystone Airplane Company as riveter and leadman.

About that time, a movie scout saw his skating act. Another invitation to Hollywood. This time he accepted.

But he never "caught on" in the land of make believe. Never made it big. Instead it was North American and friend Dutch Kindelberger and the famous P-51 Mustang.

And when things tightened up over there, it was Northrop and friend John K. That was in 1945.

Started in old Department 3. Dan Kraybill, Northrop's Gary Cooper, now with Chance-Vought, was his boss.

LEGENDARY FIGURE

In his near 20 years at Northrop, Frank has become something of a legend.

Says Wayne Morrison, his general foreman, "Frank can do anything there is to do around this shop and a lot more. And this is important in our area where most of the work is connected with support equipment for the F-5

and the T-38. It pays to be self-sufficient here. Rarely is tooling provided when you're building engine stands, tow bars and dollies, jacks, and special tools to service the airplane in the field.

"Lack of tooling doesn't stop Frank. He is ingenious in figuring ways to beat our problems. His latest got us over the hump in building engine stands. We had to bend two-inch tubing to a 36-inch diameter 180 degree semi-circle. This could have meant putting in a heat set up. We thought about fabricating it, or subcontracting it to some company with big rollers. Actually, the job had us stumped. Every way we looked at it, it was going to cost too much money.

TOOL MAKER

"Frank untied the knot. He set to work and for very few dollars and more or less scrap materials that were headed for salvage, built a forming aid that works in the Hanifin press. Built a real good tool that works like a charm. Makes a perfect part every time. Does the job cold and in fast time.

"Invariably, when a new project comes in, you can depend on Frank to figure out a short cut or a better method. He has never been stopped yet."

Says Gunner Carlson, foreman in 5502, "Frank's attendance record is outstanding. In 20 years, he only missed seven days. The flu bug got him once. We don't know how. Must have been a super flu bug. Frank doesn't give up easy."

Truly, the Atkinson record of ideas that help production and quality is outstanding. His card in the Suggestion Award files includes:

Tube bender, \$20; method of bending tube, \$69; special die for multiple forming of parts, \$44; trim tool for part 09621503, \$37; trim tool for tubing, \$27; tools for trimming and forming steel clamps, \$49; and tool for tube forming (pending).

Frank takes all this as routine. When asked how come he is so productive on the idea side, he rationalizes it this way. "Those farmers back in Missouri could break machinery in ways and in extent that would drive you crazy. When they came to my

father's shop with torn up threshing machines and haybailers, you couldn't wait to get new parts from Des Moines or where ever. When grain is ripe, it's ripe and it waits for no man. My dad would just go ahead and work out a fix right there at his forge and anvil.

"If it was some sort of special job, like a special wagon, or modifying a fresno (mule-powered forerunner of today's prime movers) he studied things awhile and then went to work. Next thing you knew the farmer was using what came out. And they came from miles around to get his help.

"I guess this is what it amounts to.

"I watched my father work with his hammer and his anvil.

"He built some wonderful things. He seemed to have a great sympathy for metal. And he must have been a born physicist the way things worked—proper leverage, right balance and so on. But never anything fancy. Didn't have time for that.

"I guess I feel the same way he did about jobs. To want to make things work right comes naturally."

Frank is 67 years old, but don't let it fool you.

THE GREEN HORNET

Down in 5502 they call him the Green Hornet. It started either with a green cap he used to wear, or with that radio program oldie. Frank doesn't know which. He doesn't mind. Actually it pleases him.

Frank has another thing going too. Now and then when a co-worker complains about this difficulty or that difficulty on the job, or with the schedule, he is wont to say, "Why don't we ask the Russians or the Chinese what to do. Maybe they would tell us how to get this tough job done or how to solve that problem.

"You'd be surprised at how things start to move then," says Frank.

The News salutes Millard Frank Atkinson, a mechanic's mechanic. He has had nearly 60 years in the shop, counting those early days at the anvil back in Pease, Missouri.

If there is a problem lying around, Frank is your man.

Ranger 7 Lunar Photos To be AIAA Dinner Topic

The American Institute of Aeronautics and Astronautics will present "Ranger 7 Photo Results" at the next dinner meeting tomorrow night, November 19, it has been announced.

The event will take place at the AIAA auditorium, 7660 Beverly Blvd.

Speaker for the evening will be Raymond L. Heacock, Space Science Division, Jet Propulsion Laboratory. Guest chairman will be Dr. Homer J. Stewart, California Institute of Technology.

Dr. W. H. Pickering, director of Jet Propulsion Laboratory, has been invited as a special guest. Following Mr. Heacock's talk, Dr. Pickering will review the reaction to the Ranger 7 project in several foreign countries.

The program will cover a description of the Ranger 7 mission including the development of the photographic system. A discussion of the evaluation and interpretations of the photos, illus-

trated with slides, will be presented. A movie sequence of pictures from one camera from start to impact will be shown. The unusual film puts viewers "on board" for a visual landing directly on the face of "the man in the moon."

To make dinner reservations call 931-1841. Members, \$3.50. Non-members, \$4.50.

Social hour gets under way at 6 p.m. Dinner will be at 7. The program will begin at 8.

Norair and NSL General Manager Dick Horner, has been nominated to the AIAA national presidency for the upcoming 1965 term. See Northrop Norair News, October 21. Present AIAA president is Courtland D. Perkins, chairman, Department of Aeronautics and Mechanical Sciences, Princeton University.

Los Angeles Section chairman is Maurice A. Sulkin, assistant to the vice-president, Research and Development, North American Aviation.



RIDES WANTED

8 a.m. — 4:45 p.m.

FAWNSKIN DR. & SILVER ARROW DR.
Palos Verdes Peninsula, John P. Sanford,
ext. 2527.

PARAMOUNT & DEL AMO BLVDs., Lake-
wood. V. L. Johnson, ext. 1545, 423-
2901.

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

HOME, 4-bdrm., 3-bath, 2050 sq. ft., fireplace, ocean view, near schools. Palos Verdes Estates, \$47,000. 373-1143.

STUDIO COUCH, makes into dble. bed, charcoal, \$40. 348-4874.

RECORD CABINET, walnut, lamp table-comb., 5', \$50. DA 5-5245.

FORD, 1963, 500 sports sedan, 260 cid eng., bucket seats, p/b, p/s, w/w, ta. \$1995. CI 4-1793, Box 1901.

STOVE, O'Keefe & Merritt, small model, 4 burners & grill, \$20. PL 7-4305.

ARCHERY TACKLE, 2 bows, 26 & 35-lb., arm shields, finger tabs, some arrows, \$25. 674-2060.

RANGE, O'Keefe & Merritt, apt-size, aas, white, \$35. EX 4-8641.

GLASSPAR Delmar, American tilt trailer, \$1495. 941-5240.

RADIO, Sony 12 trans., AM-FM, dual antenna, \$50. 671-9269.

RADIO, CB, 2-way, exec., model 100, crystals, mobile antenna, \$150. DA 5-3724.

TAPE RECORDER, Steelman, battery, a-c converter, \$35. 675-5077.

HOME, 3-bdrm., 2-bath & duplex, 2-bdrm. ea., 3-car closed gar., res. dist., 8 min. to Norair, \$39,950. PL 4-1964.

CAPE STOLE, imported brown Russian saurpel, \$50. AX 5-5813.

OUTBOARD, 15-hp Evinrude, used 2 seasons, \$135. TE 1-9545.

PORSCHE speedster, 1958, AM-FM radio, new clutch & shocks, \$1800. PL 6-6845.

DE SOTO, 1959, p/s, good tires, \$400. 375-2490.

VOLKSWAGEN deluxe micro bus, 1962, low mileage, \$1750. 676-1235.

FORD station wagon, 1955, \$175. OS 5-8414.

TIRES, 4, 8-00x14 Goodrich Silvertown tubeless w/w, \$25. Box 1902.

CHEVROLET Impala, 1959, new trans., \$1095. 676-3132.

HOME, 2-bdrm., encl. patio w/b-b-a, landscaped, Hawthorne area, \$17,850. OS 5-1726.

MCB, 1964, 25-28 mpa, \$1900. 714-897-8268.

MAGAZINES, Model Railroader, May 1943-April 1952, 49 issues & other railroad books, \$15. GE 1-4233.

TIRES, 4, Allstate Guardian, 7.50x14 black tubeless, \$60. OS 6-2373.

VOLKSWAGEN station wagon, 1960, 41,000 miles, new brakes, 8-pass., \$975. 361-0625.

PLYMOUTH, 1959, 4-dr. h/top, V-8, p/s, p/b, r/h, \$795. 679-1992.

ORGAN, elec., 14-bass pedal, \$375. PL 7-7283.

FORD Galaxie, 1961 2-dr. sedan, r/h.

COST-OF-LIVING PAY INCREASE FOR HOURLY

Norair and NSL hourly personnel have been awarded a one cent an hour cost-of-living increase effective November 2, it has been announced by General Manager Dick Horner.

The September reading on which the adjustment was based, was up 0.2 points from June 1964.

Next Bureau of Labor Statistics reading will take place on December 15. Changes occurring then will be effective on February 1, 1965.

FOR SALE

w/w tires, Cruise-O-Matic, \$995. NE 9-7284.

CHEVROLET Impala, 1958, r/h, p/s, \$550. OS 6-7614.

OLDSMOBILE 88, 1954 4-dr. sedan, p/s 5 new tires, \$185. DA 9-9186.

WILLYS, 1953, o/drive, r/h, \$85. FR 2-7281.

MERCURY, 1954 h/top, 2-dr., 4 good tires, \$150. 327-8035.

HI-FI, AM-FM, 8' Iona & 21" B/W TV, Lansina speakers, \$250. OS 5-1825.

AUSTIN HEALEY Sprite, MK II, 1962, red, \$1100. 379-7567.

BUSINESS COURSE, Alexander Hamilton, 24 book set & study lessons, \$25. FR 2-3827.

REFRIGERATOR, Coldspot, \$75. 675-5300.

SLOOP, 18' auxiliary, traditional-type, sleeps 2, galley, many extras, \$2250. 372-4907.

PICKUP, 1926 Ford roadster, \$350. 374-3283.

OLDSMOBILE 98 Holiday, 1954, 2-dr., \$150. PL 4-3914.

TENOR SAX, Buescher, \$125. FR 4-6003.

BAR STOOLS, set, wrought iron & rattan, swivel-type, \$20. OR 8-0250.

FALCON Ranchero, 1961, auto. trans., r/h, new tires, brakes, battery, \$750. OR 7-2448.

PLYMOUTH Belvedere, 1957, 2-dr. sedan, r/h, \$100. 323-6894.

REDUCING TABLE, Stauffer, deluxe model, \$90. FR 1-4887.

PLYMOUTH, 1962 2-dr., auto., full transistor radio, w/w, \$1375. 964-1148.

MERCEDES-BENZ 220S, 1962, auto. trans., w/w, reclining seats, heater, 31,000 mi., \$2900. FR 8-5712.

PLYMOUTH Belvedere, 1957, 8 cyl., 4-dr., r/h, new motor, new tires, auto. trans., \$750. OS 6-3862.

HOME, 2 bks. to Norair, 2-bdrm., lae, R-3 lot, fenced, lae. patio, \$19,995. OS 9-6982.

OLDSMOBILE 98, 1963, sport sedan, r/h, full power, w/w tires, \$2400. GL 4-1708.

TR-3, 1960, \$1250. Box 1903.

IGNITION SYSTEM, Neli 4-transistor, still in box w/new guarantee, 30,000 miles, fits any car, 6 or 12 volts, \$37.50. FR 8-2609, BL 6-2376.

METROPOLITAN, 1960, r/h, \$450. TE 3-2512.

ORGAN, Hammond spinet M-3 w/percussion, maple, \$975. 831-5837.

HOUSE, 3-bdrm., 1 1/2-bath, newly-decorated, landscaped, 2 patios, sprinklers, 18'x20' storeroom, block walls & planters, fruit trees, walk to Northrop, \$26,500. OS 6-8842.

FILE CABINET, 8 1/2"x14" top opening & center drwr., 3" bottom drwr., key, rollers, \$12.50. 377-5862.

LIMIT-ONE ITEM

BUICK Riviera, 1963, factory air, all power incl. vents, tilt wheel, Cruise-O-Matic, leather bucket seats, w/s/w, \$3795. 671-3154.

ROASTER, Westinghouse elec. w/inserts, \$19. OR 8-1692.

SCHNAUZER, min., 6-wks-old, male, Tri-Int-champ line, AKC, will hold till Xmas, \$175. 714-776-8956.

BICYCLE, boy's, 26" \$12.50. PL 5-4497.

YOUTH BED, custom-made, solid maple, head & foot boards, mattress, springs & side rails, \$30. FA 8-2696.

TELEVISION, 21" Olympic mahogany comb., \$95. OS 6-6390.

STAUFFER TABLE, De Luxe w/lea & hand bar attachments, \$150. 675-6020.

T-BIRD, 1956, port holes, \$1095. 933-4551.

SHAVAR, Remington Lektronik cordless, \$20. 670-5627.

FLEETWOOD Special, 1957, Cad. maq. rims, full power, \$850. LO 7-1884.

STERLING SILVER, 5-pc. coffee-tea service plus huqe tray, \$500. 375-7038.

HOUSE, 3-bdrm., in San Pedro Hills, tree area, fireplace, wood paneled living room, \$27,500. TE 1-3346.

BUNK BED set, \$40. EX 7-0366.

PONTIAC Grand Prix, 1964, full power, air cond., & many other extras, 12,000 act. miles, \$4195. 639-7284.

RUG, 9'x12' hand-hooked Chinese, \$75. TE 3-5550.

WANTED TO BUY

SKIS, 195 cm. Kastle, Kneissel or other good wood or metal ski. FR 7-3888.

WHEELCHAIR for small child. FR 5-5364.

GUITAR, used western-style in good condition for under \$15. DA 4-0161.

RENTALS OFFERED

APT, 2-bdrm., aar., \$100. Box 1904.

HOUSE, 3-bdrm., fenced vd., patio, off Long Beach Blvd. on Compton, \$125. OS 9-7256.

Twenty-year Pin Presentations



DIAMOND DAY—Norair General Manager Dick Horner, seated center, presents diamond studded service pins to Division men and women who reached 20 years service during the past month. Photo, taken in the board of directors room shows, from left, seated, Dick Witt, Dick Lawton, Sebastiana Sanzaro, A. L. Buford. Standing, from left, J. O. Curran, F. L. Justice, W. E. Jesse, H. R. Watson, L. G. Baldini, Bill Minner, George Title, and J. A. Silva.

RENTALS OFFERED

HOUSE, 2-bdrm., furn., aar. & enclosed yd., 1/2 block from ocean in Manhattan Beach, \$150 mo. FR 4-5028.

APT, 2-bdrm., upstairs soundproofing, soft water laundry, carports & sewer to accommodate campers & camp trailers, \$122.50. 676-5532.

HOUSE, 2-bdrm., unfurn., aar., enc. vd., block from ocean in Manhattan Beach, \$110 mo. FR 9-4517.

APT, unfurn., 2-bdrm., all extras, closed aar., lae. pool & patio, near El Camino, \$120 mo. DA 9-5986.

APT, 1-bdrm., unfurn., aarae, water & trash paid, \$95 mo. DA 9-0314.

HOUSE, 2-bdrm., unfurn., fenced vd., aar., Hermosa Beach, \$185 mo. FR 4-4198.

APT, 1 bdrm., 1 mile to Northrop, unfurn., newly decorated, laundry fac., carport, \$75. OS 5-9695.

DUPLEX, furn. & unfurn., 3-bdrm. w/pvt. patio on beach in Play del Rey, newly decorated, \$160-\$185. OS 9-5506, OS 5-2305.

APT, 1-bdrm., furn., rec. rm., pool & sundeck, util. pd., carport, close to Northrop, no children under 14, no pets, \$115. 370-2752. 679-6540.

APT, 3-bdrm., closed aar., laundry facilities, \$145 mo. FA 0-1584.

PERSONALS

WE WISH to thank our many friends at Northrop for the hundreds of cards & best wishes received during my illness & convalescence. Am doing fine. GEORGE FORBES & FAMILY.

FOR SALE OR TRADE

PROJECTOR, Honeywell 650 auto. maq. action, takes 35-mm & 2 1/4"x2 1/4" slides, \$100 or trade for enlarger, size 4"x5". FR 5-5036.

ICE BOX, 2'x4'x18", \$10 or trade for small size to be built into trailer. FA 8-3306.

APT. BLDG., 7-unit, modern, owner's unit 3-bdrm., 2 1/2-bath & f/r, close to Northrop \$89,000 or trade for single home or duplex. OS 6-5425.

TAPE RECORDER, 1-yr-old Roberts 770 Crossfield stereo, AR-2 speakers, \$150 or trade for Tanbera recorder & AR-2a speakers. 291-2784.

NRC SCOUTS IN FIRST PLACE ARROW HONORS

The NRC - sponsored Scout Troop 262, George Larsen, commissioner, has taken first place in the Centinella District Order of Arrow Callout.

The troop was also awarded the camping trophy during the two-day event, October 10 and 11.

Fifty other Scout troops hailing from Hawthorne, Inglewood, Lennox, Westchester, and Lawndale took part in the competition.

The affair was held at Centinella Park.

Troop 262 meetings are held every Thursday at Ramona School in Hawthorne. Time is 7:30 p.m.

Ski Season Looks Good, Ski Folk Get In Mood

There is snow on the slopes—The NRC Ski Club has invited the Aerospace Ski Club to join in the November 18, 8 p.m. meeting at the NRC Clubhouse, it is announced by Emily Northway, commissioner.

Speaker for the evening will be from the Far West Ski Association and will give particulars on how that organization came into being, modus operandi, and how Northrop people may become members.

There will also be a film on skiing in Japan—"Japan, Land of the Falling Skier," wherein Nipponese skiers, both good and bad, furnish a laugh a second.

The December 1 meeting, also at the Clubhouse, 8 p.m., will feature the film "Ski Tricks," Switzerland setting and provid-

ing some of the most fantastic ski stunts ever performed. High speed wedlen, on-skis jump from roof of a tall lodge, super tip drop jumps, summersaults forward and backwards, are shown in detail through slow motion and stop motion.

Bring a friend, says Emily. An average of 25 members attended the last two meetings and all had fun.

NRC to Stage 11th Annual Keg Tourney

The Northrop Recreation Club will stage its 11th annual Christmas bowling tournament during the yearend holiday, it has been announced by the five-member tourney committee composed of Bill Myerson and Vi Jennings, Norair; Dick Miller, Dorothy Baldwin, and Charles George, Nortronics.

The event will take place Saturday and Sunday, December 26 and 27 at the Missile Bowl in Gardena. Squad times are 10 a.m., 12 noon, 2 p.m. and 4 p.m.

It will be an ABC/WIBC sanctioned tournament. Complete rules are available at Personnel Activities.

Entries opened on November 9 and are due to close December 11.

The events include men's singles and doubles, women's singles and doubles, mixed doubles, men's all events, women's all events, men's five-team event and a mixed foursome.

PRESEASON CAGE PLAY TO START AT LOCAL GYMS

NRC basketball teams are about to engage in a preseason tournament, it is announced by Bob Van Allen, Club president.

Days of play will be Tuesdays at Lawndale High School and Wednesdays and Saturdays at Leuzinger.

All Northrop personnel are eligible.

Rosters and individual sign-up forms are available at Personnel Activities.

League play is due to begin after the tournament with starting date to be announced.

TOASTMASTERS OFFER KNOW-HOW FOR ORATORS

Public speaking exercise for the Northrop Toastmasters Club course for tomorrow night, November 19 will be "Delivering a Speech—emphasis on visible expression," it has been announced.

On December 3 the topic will be "Delivering a Speech—audible expression," and on December 10 the course will conclude with "audio-visual aids."

Toastmaster public speaking sessions are being held at the Cockatoo Restaurant in Hawthorne.

Meeting time is from 6:30 to 9:15 p.m.

TORREY PINES NAMED FOR NRC CHRISTMAS GOLF

Torrey Pines will be the scene of the NRC yearend tournament, it has been announced by Tom Williams, days, and Lou Luzon, nights.

Dates of play will be December 28 and 29.

Both the long north course and the sporty south course will be played.

Accommodations are available through Personnel Activities office. Rates are reasonable and especially attractive for those who will take their families.

Signups start Monday, November 23 at the Personnel Activities office.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, December 2, 1964

HAWTHORNE

EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

PROUD MILESTONE: 500th Talon Delivered



AT FLIGHT DOOR—T-38 Talon N5600, the 500th production airplane built by Norair for the U.S. Air Force is shown at Palmdale flight door prior to delivery. Men representing all phases of the Production Flight facility are from left, R. W. Evens, liaison engineer; P. L. Minoletti, flight line crew chief and W. C. Wible, foreman, Flight Preparations; L. M. Hamil, supervisor, Quality Control; E. F. Spaniol, foreman, T-38 Final Assembly; E. N. Clipperton, foreman, and R. A. Bevans, flight line crew chief, Flight Operations; R. E. Duvall, Manufacturing Engineering supervisor; E. E. Blecksmith, foreman, T-38/F-5 Engine Assembly; H. J. Burns, jr., foreman, T-38/F-5 Paint Operations; J. S. Hamilton, foreman, T-38 Final Assembly; J. R. Prenter, Manufacturing Control supervisor.

NORTHROP FIRST QUARTER EARNINGS SHOW INCREASE, BACKLOG CLIMBS

Northrop Corporation had consolidated net income of \$2,007,000 in the first quarter, ended October 25, 1964, of the current fiscal year. Thomas V. Jones, chairman and president, reported last week. This compares with consolidated net income of \$1,885,000 a year earlier. The first quarter earnings are equivalent to approximately 49 cents per share on the 4,092,739 shares

outstanding October 25, 1964. A year earlier the Company's first quarter earnings were equivalent to approximately 45 cents per share on the 4,202,322 shares then outstanding.

Net sales for the first quarter totaled \$72,443,000 as compared with net sales of \$75,907,000 in the first quarter of the preceding fiscal year.

The Company's backlog of sales at October 25, 1964 amounted to \$401,000,000 as compared with \$352,000,000 a year earlier.

Aircraft sales began to increase according to schedule during the first quarter of the current year. These increases will continue un-

til the scheduled level rate is reached early in 1965, Mr. Jones said.

The regular quarterly dividend of 25 cents per share, payable December 12 to stock of record November 27 has been declared.

MANAGEMENT CLUB YULE PARTY, DEC. 4

The Northrop Norair Management Club will hold its December Christmas meeting at the Airport Marina, it has been announced by Leo Sacks, president.

Festivities will get under way with hors d'oeuvres and refreshments at 5 p.m. Dinner will be served at 6 with steak or lobster entree.

"This will be a 'galore' type meeting," says Mr. Sacks. "There will be entertainment galore, prizes galore, and fun galore."

Headlining the entertainment will be the NRC Symphonaires singing Christmas carols and hymns.

Headlining the prizes will be a free weekend for two at the Dunes Hotel in Las Vegas plus another free weekend for two at the Oasis Hotel in Palm Springs.

Attendance prize will be two shares of Northrop stock.



BON VOYAGE—Great Scroll, 160 feet long containing signatures and happy landings best wishes from thousands of Norair people, is here being presented to Colonel Charles W. Clark, Northrop Air Force Plant representative, by Jack Mannion, manager, Manufacturing Materiel department, at time of 500th T-38 delivery. First Talon rollout was in August 1959. Talon 13171 is to go on station at Laughlin Air Force Base, Del Rio, Texas. Pilot for flyaway—Lieutenant James L. McCleskey.

Youth Group Visits Norair For Briefing

Norair Division last week was host for briefing and tour for the first youth group to visit the plant under sponsorship of the Youth Opportunities Board.

The Youth Opportunities Board stems from the Office of Economic Opportunity, the agency which administers President Johnson's anti-poverty program.

Los Angeles has received the second largest grant, \$2,729,683, out of the \$35 million allotted nationwide. Detroit was first with \$2.8 million.

COLORED LITHOS OF DIVISION PRODUCTS AT P-A

Personnel Activities, Norair Plant One, is now offering colored lithographs of Northrop products in sets of five at 50 cents a set, it has been announced by Dick Pryor, general supervisor.

The sets include one each of the M-2 and the HL-10, two of the F-5 and one of the T-38.

The lithographs measure 16 by 20 inches.

Helicopter for Santa

NRC Yule Good Timetable

(See Page Two)

GRAPHICS 64 DRAWS PRAISE, PLANS DISCUSSED FOR '65

The NRC Graphics 64 exhibit held during the weekend of November 14 at the Product Display building proved to be an outstanding success.

An NRC first, the affair served to showcase the broad spectrum of art and talents represented among the average personnel in a major aerospace firm.

Visitors who came to see the show provided cross-section representation from widely diversi-

fied Southland activities. Motion picture studios, oil companies, other aerospace manufacturers, cities, department stores, high schools and colleges, printing concerns, automobile dealers, hospitals, interior decorator studios, art galleries, plus many more categories were on hand at various times during the three-day exhibition.

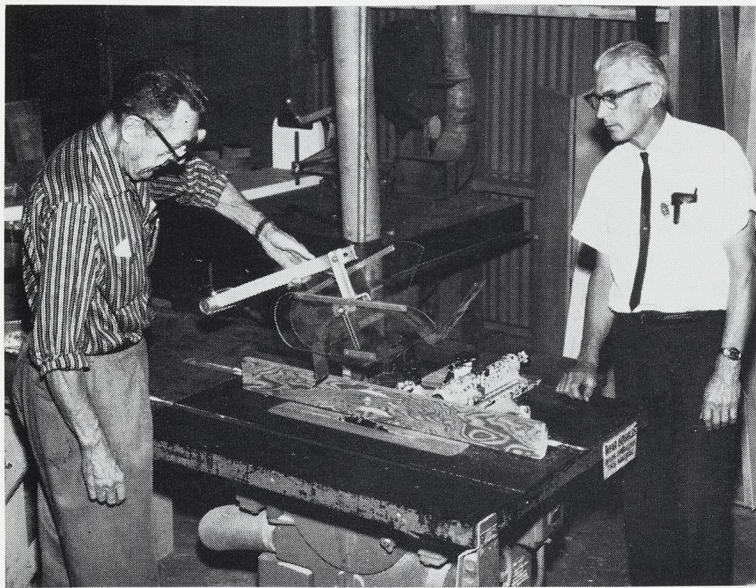
A major share of the credit for Graphics 64 success goes to

Doug Kiefer, coordinator in Graphics services section; and to personnel of the NRC Quick Sketch Club, Art Club, and Camera Club.

Although there was no attempt made to market any of the many marketable art creations on display and it was strictly non-jury, several solid inquiries were received relative to individual purchases.

A second edition to Graphics 64 planned for some time next year is now being discussed.

Saw Guards for Safety



NEW LOOK IN SAW GUARDS—Division has recently installed several "Repco" saw guards in the interest of utmost safety in employee protection when using table saws. Shown here R. E. Peterson, "Repco" inventor and owner of R. E. Peterson Company, demonstrates guard mechanism to George Putnam, Norair safety engineer. Points of safety include work visibility via plastic shields, independent hold-down pressures fore and aft to prevent kickback and rising on the rip, ease of dado application, light but strong materials, quick adjustability, can be locked in place.

Northrop Credit Union

Vacation Trailer
Financing

Call station 617

'LIL ABNER AN SRO, JANUARY DATE COMING

NRC night at the Bluth Brothers "in the round" theatre, Culver City, proved to be an SRO. Stage play for the evening was Lil Abner.

Another date is now being planned for mid-January.

Credit for originating, planning and coordinating the event goes to Chairman Fritz McLarney and her NRC Special Events committee.

Regular \$2.50 tickets for Lil Abner went to NRC folk for \$1.50. A similar price break is indicated for the next show.

Supersonic Champ

Historic T-38 Jet Plane Arrives At Final Home: Olmsted Air Base

(Reprinted with permission of the Harrisburg, Pa. Patriot.)

The aircraft that set world records and carried distinguished visitors to show the speed and versatility of the T-38 has made Olmsted its home.

Famous No. 5124 at Northrop is now Tail Number 551 to the Air Force. It has been featured and photoed hundreds of times.

Jacqueline Cochran set the closed course speed record for women in it. Arthur Godfrey once handled its throttles.

One year the wings were taken off and it was packed up and sent to Europe to show NATO allies throughout the continent what American pilots were learn-

ing jet flight in. Many heads of state and military leaders occupied the student's seat.

Now its era as a demonstrator is ended, and the keys have been turned over to Middletown Air Materiel Area engineer Capt. Hugh T. Gunn.

In bringing the airplane in, Captain Gunn whistled past the airdrome and then made a second, slow pass, banking into the west approach to the runway, settling down on Olmsted and taxied over to Flight Test, where he brought it to a stop at its new home.

On hand to greet him were AMA Deputy Commander, Col. A. A. Riemony, and his own boss, Col. Gene Patton, chief of service engineering. Standing by and anxiously waiting for the official welcome were Mrs. Gunn and the three Gunn children, Deborah, 7; Rebecca, 5; and Valerie, 2.

Capt. Gunn brought with him records on Air Force 551 and high praise for the handling of it.

The craft now has 920 hours, made during 1015 separate flights. This is high for a jet aircraft but it has enjoyed tender,

loving care from the mechanics at Northrop.

The company started turning out T-38s beginning with factory serial number 5101. Thus, the number 5124 indicates it is the 24th turned out.



DECADE OF SERVICE—J. A. Thompson, NSL's Huntsville facility, receives Northrop 10-year pin from Major General John A. Barclay USA (ret.) and manager of the facility. Mr. Thompson, supervisor, Materiel Control, passed his newest service anniversary on November 8.

NRC Yule Event Calendar, Helicopter for Santa

Northrop Recreation Club yuletide calendar of events as announced by Bob Van Allen, president.

December 3, Thursday

NRC Symphonaires to sing at the Grace Methodist Church, 1118 Yukon in Inglewood . . . 7:30 p.m.

December 4, Friday

NRC Square Dancing Club . . . Hill Rancho, 15701 South Crenshaw, Gardena . . . Time, 8 p.m. . . . Bill Ball will call.

December 4, Friday

NRC Symphonaires will sing at the Norair Management Club dinner . . . Airport Marina Hotel, Lincoln and Manchester.

December 5, Saturday

Manufacturing Control Christmas dance . . . NRC Clubhouse . . . From 9 in the evening until 1:30 a.m. . . . Tickets at Personnel Activities, \$2.50 each and only 300 available . . . Music by Gary Adams orchestra . . . Door prize.

December 7, Monday

NRC Camping Club Christmas party . . . Potluck dinner at the Clubhouse, 6:30 p.m. . . . Bring your own "bacon and beans" . . . Inga Brown color slide show on Lapland—home stamping grounds of Dancer and Prancer, Vixen and Blitzen, et al.

December 11, Friday

NRC Square Dancing Club . . . Hill Rancho . . . 8 p.m. . . . Herb Leshner, caller.

December 12, Saturday

NRC Council dinner meeting and party . . . Social hour, 6:30 p.m. . . . Dinner, 7 p.m. . . . Dancing, 8 to midnight . . . Smorgasbord . . . Gary Adams and his orchestra . . . NRC Clubhouse.

December 12, Saturday

NRC Symphonaires to sing at Calvary Presbyterian Church, 12515 South Acacia in Hawthorne . . . 8:30 p.m.

December 13, Sunday

Gem and Mineral Club Christmas party . . . NRC Clubhouse . . . 7 p.m. . . . Gift exchange . . . Potluck dinner . . . Bring your own "mulligan."

December 18, Friday

Cub Scout Christmas party . . . NRC Clubhouse . . . 7:30 p.m. . . . Gift exchange.

December 18, Friday

NRC Square Dancing Club . . . Hill Rancho . . . 8 p.m. . . . Ralph Hill, caller.

December 19, Saturday

Annual Maintenance and Construction Christmas party . . . NRC Clubhouse.

December 19, Saturday

Palmdale-Edwards annual Christmas dance . . . North American Recreation Clubhouse . . . From 9 p.m. until 1 a.m. . . . Dale Nichols and his orchestra . . . Door prizes.

December 19, Saturday

NSL-Huntsville, Alabama, second annual Children's Christmas party . . . Toys and goodies for toddlers, tots, teens.

December 19, Saturday

NRC Symphonaires to sing at the First Methodist Church, 304 East Spruce, Inglewood . . . 7:30 p.m.

December 20, Sunday

Annual Children's Christmas party, Hawthorne complex . . . Product Display building . . . From 12 noon to 4 p.m. . . . Santa will come in by helicopter and land on the Administration building lawn . . . Outdoors entertainment . . . Free punch, coffee, candy, ice cream . . . Christmas music . . . Toys to be distributed . . . Puppet show.

December 20, Sunday

Palmdale-Edwards Children's Christmas party . . . North American Recreation Clubhouse . . . 1 to 5 p.m. . . . Toys.

December 21, Monday

Christmas Gift program (former Adopted Family program) . . . Gifts to be inventoried and displayed in Norair Product Display building.

December 21, Monday

NRC Symphonaires go caroling at the Daniel Freeman Memorial Hospital . . . 7:30 p.m. . . . On all floors.

December 22, Tuesday

Christmas Gift program deliveries.

December 22, Tuesday

NRC Symphonaires go caroling at the Hawthorne Community Hospital . . . 7 p.m.

December 26, Saturday

NRC Camping Club 10-day holiday trip to Death Valley.

December 26 and 27, Saturday and Sunday

NRC Bowling Club to roll 11th annual holiday tournament . . . Missile Bowl in Gardena . . . Squad times, 10 a.m., 12 noon, 2 p.m., 4 p.m. . . . Men's singles and doubles . . . Women's singles and doubles . . . Mixed doubles . . . Men's all events . . . Women's all events . . . Men's five-team event . . . Mixed foursome.

December 28 and 29, Monday and Tuesday

NRC Golf Club 1964 Christmas golf tournament to be played at Torrey Pines Golf Course . . . Green fees and prize fund for the two days, \$7.

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NO. 20

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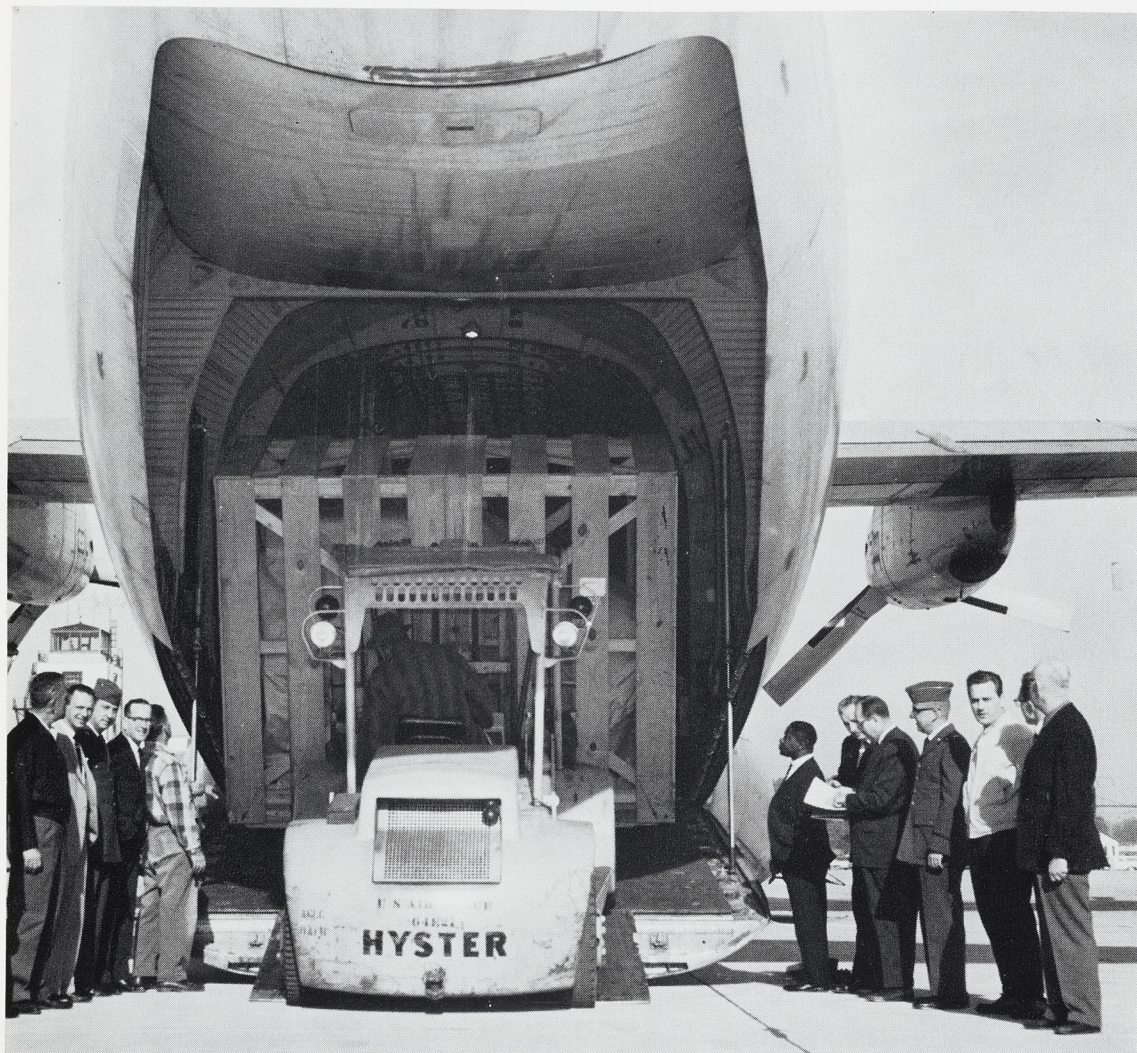
CHARLES BRADFORD, Editor

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Preview of Global Support

F-5 MILESTONE—Global logistics milestone for Northrop F-5 fighter took place recently at Middletown Air Materiel Area with initial shipment of support material to Iran. Shown here reviewing transport documents and packing list are from left, Messrs. Lynch, Manari; Major Bob Alexander, System Support manager; M/Sgt. Parrella, Messr. Mellinger, Howard Huff, Norair rep; Messrs. Hendrix, Peverall, Johnson, and Berry. The U.S. Department of Defense has announced that Greece, Iran, Norway, Turkey, Korea, the Philippines and the Republic of China will modernize their air forces with F-5s. Personnel from some of these countries are already in the U.S. being trained by Tactical Air Command in operation and maintenance.



EASY DOES IT—C-133 door is perfect match for outsized F-5 support crate as items are loaded aboard for air voyage to the Near East. F-5 recently demonstrated sod field landing and takeoff capability in variety of configurations such as 2000-pound bombs and Sidewinders; or two 750-gallon tip tanks. (See Northrop Norair News, November 18.)

Robinett Named Director, Budget Administration

Keith Robinett, former chief, Business Systems Engineering, has been appointed director, Budget Administration, it has been announced by J. Grant Macdonnell, Division treasurer.

Mr. Robinett succeeds G. E. Reed who recently resigned to accept the position of Corporate ad-

ministrator, Financial Systems, Boeing Company.

Mr. Robinett who has been with Norair for 10 years, came to the Division from Curtiss-Wright, Woodridge, New Jersey, and from General Electric at Schenectady, New York where he held positions in systems and procedures, budgets, cost reduction, personnel and methods. At Curtiss-Wright he was manager, Systems and Procedures. Also at General Electric he was supervisor, Test Engineering.

Mr. Robinett was educated at the University of Southern California where he majored in in-

Q and A On Savings Bonds

Question:

I own some Series E Bonds bought in August 1944. Am I required to turn them in for redemption in August of this year?

Answer:

Absolutely not. Series E Bonds bought between May 1941, and May 1949, have been given two 10-year extension periods which, in effect, make them 30-year bonds. You can continue to hold your bonds and earn interest at a straight 3.75%, compounded semi-annually on the basis of their present value, for at least another 10 years.

Question:

Is the Federal income tax on the accrued interest on Series E Bonds deducted at the time they are cashed?

Answer:

No. You are required to list your taxpayer identification number (usually your Social Security number) when you redeem an E bond, but this is not mandatory. You would list the accrued interest on your regular income tax return for the year in which you cashed the bond. But, remember: this interest is not subject to State or local income taxes.

Question:

I am smart enough to know that U.S. Savings Bonds are as sound as our country. Aside from that, what is it that makes them such a good investment?

Answer:

First of all, your principal investment and rate of return are guaranteed. Then, there is the added advantage that you do not have to report your interest earnings on E Bonds for tax purposes until such time as you cash your Bonds or they reach final maturity. Under existing regulations, this would be 17 years and nine months. Even then, this interest is not subject to state or local income taxes. Another fine feature about Savings Bonds is the fact that when they are lost or stolen, the Treasury replaces them without charge.



KEITH ROBINETT

dustrial engineering, receiving his B.E. degree there in 1949. He is presently midway in a master's candidacy program, also at USC, majoring in finance.

He is a member of the University's Scholarship committee.

He served two years, 1944-1946, in the U.S. Navy during World War II and was an officer candidate at the end of his tour of duty.

"Keith", as he is known to his hundreds of friends at Norair, and wife Phyllis, have four sons; John, 7½; Richard, 6; Stephen, 3½; and Michael, 1½.

His hometown is Franklin, Nebraska.

CECE CALLAWAY TO NATIONAL SUGGESTION BD.

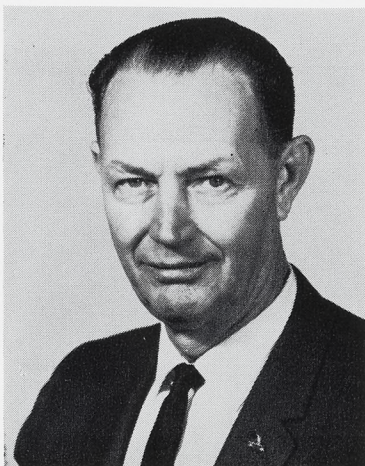
The National Association of Suggestion Systems, has nominated Norair's Cecil Callaway to their board of directors, it has been announced. The action was taken at a recent nation-wide meeting of NASS held in Boston.

Mr. Callaway, who has been head of the Division's Suggestion Award Plan for 19 years and a member of the Company for 22 years, is also on the board of the Association's Southern California chapter.

He is the first west coast association representative to hold national office.

The National Association with a membership of 1240 companies throughout the United States, its possessions, and Canada, reports that during 1963 over 5,399,000 eligible workers submitted 1,919,000 suggestions for better ways to do the job. This was an average of 33 per 100 eligible employees. Of this amount, eight ideas out of 100 received awards for an average of \$39 each.

The Norair average suggestion dollars paid per award for the period was \$44.



CECIL CALLAWAY

PRICING STUDY FOR KEY MEN

An 80-hour course in "Pricing of Prime Contracts" conducted for Norair Division and Northrop Space Laboratories has just been completed with 29 men taking part.

The series which was under the sponsorship of Contracts and Pricing department, Bob McNamara, manager, Norair and Contracts section, Don Vivrette, director, NSL, was conducted by Harbridge House, Inc.

Coordination and arrangements were handled by Education and Training, Larry Walton, administrator.

The purpose of the course was to acquaint and orient in the

latest government contracting methods and procedures.

Subjects included contract cost estimating and pricing, contract negotiation, and advanced incentive contracting with various related topics.

Bob Lloyd, Norair vice-president and assistant general manager, Operations, officiated at completion ceremonies and issued certificates to the following personnel:

A. H. Anderson, 8910; J. R. Bellevue, 1150; Marvin Elkin, 5000; C. K. Enoch, 8930; Fayze Fandey, 8920.

H. S. Geesaman, 8920; R. J.

Hallowell, 8920; E. A. Harris, 8920; G. W. Harrison, 8910.

W. R. Henderson, 8920; H. E. Hollerman, 8920; H. L. Knopp, 8920.

H. R. Lake, 1150; W. J. McConnell, 8913; C. W. McQueen, 8930; A. W. Morgan, 8920; R. S. Norland, 6410; L. G. Peterson, 6000; J. O. Plett, 8920.

L. E. Robinson, 8930; R. I. Rogers, 8920; Joe Seman, 8930; C. L. Walker, 8930; D. L. Wilson, 8920; and Ted Windsor, 8920.

From NSL—R. W. Craigo, 414; R. W. Lawton, 414; W. S. Makush, 423; and G. T. Roth, 520.



RIDES WANTED

7 a.m. — 3:45 p.m.

BERYL & PACIFIC COAST HWY., Redondo Beach, Marion Fitzpatrick, ext. 2170, 374-2398. 2
KNOTT AVE. & GARDEN GROVE BLVD., Garden Grove, Howard Roberts, ext. 595 714-897-3703. 2

7:30 a.m. — 4:15 p.m.

VALLEY VIEW & CHAPMAN, Cypress, Rrv McGraw, ext. 2324. 3

8 a.m. — 4:45 p.m.

PACIFIC COAST HWY. & HAWTHORNE BLVD., Walteria, Sylvia Darnell, ext. 2823, 2824, 675-6880. 5
CHAPMAN AVE. & EUCLID AVE., Garden Grove, Jerry Evans, ext. 1338, JE 4-3369. 5
GRANVIA ALTAMIRA & HAWTHORNE, Palos Verdes Estates, Richard R. Dodd, ext. 2382, FR 5-0867. 5

RIDES OFFERED

7 a.m. — 3:45 p.m.

KNOTT AVE. & GARDEN GROVE BLVD., Garden Grove, Howard Roberts, ext. 595 714-897-3703. 12

7:30 a.m. — 4:15 p.m.

VALLEY VIEW & CHAPMAN, Cypress, Rrv McGraw, ext. 2324. 13

8 a.m. — 4:45 p.m.

CHAPMAN AVE. & EUCLID AVE., Garden Grove, Jerry Evans, ext. 1338, JE 4-3369. 15
GRANVIA ALTAMIRA & HAWTHORNE, Palos Verdes Estates, Richard R. Dodd, ext. 2382, FR 5-0867. 15

Scott Named To Governor's Committee

Roland B. Scott, executive assistant, Norair Division—director of Industrial Relations, has been named to Governor's Committee for Employment of the Handicapped, it has been announced by Governor Edmund G. "Pat" Brown.

A native of Macon, Georgia, Mr. Scott was educated at the Georgia Institute of Technology, at Mercer University and at Auburn University.

He is a veteran of World War II, retiring from the Air Force in 1947 as a lieutenant colonel.

Following his service career, Mr. Scott became assistant industrial relations manager for the



ROLAND B. SCOTT

Mead Corporation in Chillicothe, Ohio. From there he moved to Burbank, California, as personnel director for Slick Airways, Inc. From 1951 to 1954 he was personnel manager for Grand Central Aircraft Company in Glendale, and from 1954 to 1960

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

BABY CRIB, larae w/mattress, \$20. 348-4874. A
HOME, 4-bdrm., 3-bath, 2050 sq. ft., fireplace, ocean view, near schools, Palos Verdes Estates, \$47,000. 373-1143. A
FORD, 1963, 500 sports sedan, 260 cid eng., bucket seats, p/b, p/s, w/w, ta. \$1795. CI 4-1793. A
BEDROOM SET, dble. bed, headboard, dresser & mirror, night stand, solid light oak. \$85. PL 7-4305. A
ORGAN, antique, aolden oak, \$200. 372-4907. A
THERMOFAX, 1960 secretary model. \$195. Box 2001. A
SEWING MACHINE, portable, Bernina zin-zaa. \$25. ME 3-2395. A
REFRIGERATOR, GE, std-size, \$125. 672-0295. A
VOLKSWAGEN, 1965, sea blue, \$1900. OS 5-6076. A
PUP, samoved, female, white, 5-mo-old, AKC. \$75. DU 8-9088. A
CHAIR, leather recliner w/vibrator, \$50. OS 6-2162. A
CAMPER TRAILER, Tradewinds, 2-wheel, Continental model, sleeps 6, take over \$34.44 mo. pymts., \$1138 bal. TE 5-4904. A
PLYMOUTH, 1955 conv., new top, tires & Naugaahyde seat covers, \$225. 378-5348. A
BICYCLE, 24" girl's Schwinn, \$12.50. FR 1-6328. A
BED, king-size, \$25. 371-4741. A
MATTRESS & box spring comb., \$20. Box 2002. A
GOLF CLUBS, Wilson, baq. shoes, 8, \$38. 378-4098. A
BICYCLE, 12-spd, Camponallo Derailleur, rat traps & plastic water bottle, \$65. FR 8-2810. A
STOVE, apt-size, \$15. 679-9375. A
FALCON wagon, 1962 deluxe, 20,000 miles, Fordomatic, r/h, w/s/w, \$1150. 371-1577. A
CLOTHESLINE, umbrella-type, \$10. OS 5-3423. A
HOUSE, Palos Verdes Estates, Malaga Cove area, 2-bdrm. & den, 2 1/2 baths, 2 fireplaces, 2800 sq. ft., \$62,500. FR 5-5097. OR 1-3860. A
FORD, 1954 4-dr. sedan, V-8, std. trans., \$125. DA 9-8543. A
CAR JACK, scissor, steel, manual, \$2. 371-9651. A

LIMIT-ONE ITEM

PLAYHOUSE, 6'x8', Dutch door, 5 windows, folding table & 4 chairs, \$100. TE 1-2973. A
MOBILE HOME, 2-bdrm., 2-yrs-old, 12'x 60' w/9'x35' porch, 17' screened rm., alum. awnings, built-in appliances, furn. in maple. \$6800. 428-1789. A
ICE SKATES, girl's shoe-type, Sheffield steel blades, size 1, blade guards, \$12. 714-LA 1-1516. A
RAILROAD SET, Marklin H-O model, complete, \$85. OS 5-5067. A
TAPE RECORDER, Bell, stereo, Harmon-Kardon amp., 2 speaker cabinets, \$300. 675-5337. A
ROLLER SKATES, size 8 1/2, men's, \$30. 371-8564. A
BOAT, 14', 16-hp Mercury, trailer, spare tire & tube, Coast Guard approved, \$200. TE 1-3483. A
DINETTE SET, 7-pc., Virtue Bros., hutch, buffet, charcoal, 4 pink uphol. chairs, \$100. PL 4-2702. A
SEWING MACHINE, port., Singer, Slant-O-Matic model 403 w/table, \$185. FR 7-2294. A
CORVETTE Sting-Ray, 1964, 365-hp., air cond., \$4000. Box 2003. A
WASHER, 1963 Maytag model A-500, 2-cycle, white, \$130. DA 4-4507. A
REFRIGERATOR, \$30. WH 1-6549. A
FORD, 1961, 500 Fairlane, V-8, 4-dr., p/s, auto, trans., \$1095. 679-1992. A
REFRIGERATOR, Coldspot, 8 cu. ft., \$20. 714-897-3703. A
SHOPSMITH, accessories, iiasaw, speed chanaer & jointer, early model, \$35 714-536-1368. A

he was manager, Wage and Salary Administration, Hughes Aircraft Company in Tucson, Arizona. He was then named industrial relations head of Aerospace Industries Association in Los Angeles.

He came to Norair in 1961.

FOR SALE

DESK, mahogany 9-dwr., kidney knee-hole, \$155. FR 7-6458. A
BEDROOM SUITE, walnut, vanity w/lae. mirror, bench & chest-of-dwrs., \$120 FR 5-8778. A
RANGE, O'Keefe & Merritt, 36", chrome grill, \$48. 676-8279. A
RADIO, General VS-2, 2-way, \$75. Box 2004. A
PUPS, German sherpherd, AKC rea., black, white, \$100 & up. 378-1307. A
RANGE, O'Keefe & Merritt, full-size, \$65. 426-3013, 320-5982. A
OLDSMOBILE, antique, 1931, \$595. OS 6-6390. A
REFRIGERATOR, Coldspot, 11 cu. ft., crosstop freezer, meat tray, 2 crispers, \$50. DA 3-6523. A
LAMP SET, walnut base, \$12. 674-3359. A
BICYCLE, boy's, 26". \$12.50. PL 5-4497. A
SPRITE, Austin Healey, 1962 MK II, \$1100. 379-7567. A
VOLKSWAGEN, 1965, grey, \$1795. LO 7-1884. A
CHEVROLET, 1957, Bel Air, h/top, Powerglide, r/h, chrome wheels, \$500. 379-0600. A
CHEVROLET, 1948 club coupe, \$300. DA 4-8789. A
MOTORCYCLE, 1963 BSA, \$595. 677-4348. A
REFRIGERATOR, aas, \$15, various other household furnishings. Box 2005. A
HONDA 50, \$200. 645-7635. A
COFFEE TABLE, custom-made, oval shaped, marble, over 60" long, 22" wide, 2 wood pedestals, antique white w/brushed aold accents, \$80. 672-9347. A
TEMPEST, 1961, 4-dr., automatic, 35,000 miles, w/w, \$775. 379-9390. A
CHEVY II, 1963, Nova super sport, many extras, \$2250. FR 7-2921. A
PLYMOUTH, 1958 4-dr. sport wagon, 9-pass., p/s, p/b, r/h, elec. tailgate window & seat \$595. GE 0-1245. A
VOLKSWAGEN, 1963, 1200 sedan, anti-sway bar, AM-FM & lonawave radio, \$1450. PO 4-6502. A
PUP, Weimaraner, AKC rea., male, 4-mos-old, all shots, champ stock, \$65. OR 5-4905. A
BOAT, 25', fast bridge, dual controls, lae, bait tank, engine freshwater cooled, outriaers, 2-1 reduction Chrysler marine, \$2000. OS 5-7729. A

WANTED TO BUY

EXERCYCLE, used, OS 5-2772. B
SKIS, Head, over 6' long, GL 4-5985. B
BOOKCASE, small, 329-1863. B

FREE (to be given away)

PUP, blonde cocker, 8-wks-old, OS 6-3365. D

RENTALS OFFERED

APT, 1-bdrm., unfurn., aar., pvt. patio, close to bus lines, newly decorated, adults, \$78.50 mo. DA 9-9195. E
APT, 1-bdrm., unfurn., 1 mo. free rent on 1-yr-lease, 3 blocks from Northrop, adults no pets, \$95 mo. OS 6-6818. E
DUPLEX, 1-story, children & pets ok, range & refria. avail., fenced yd., on Rosecrans near Aviation, \$70 mo. 675-9389. E
HOUSE, 2-bdrm., aarbaae disp., aar., \$95 mo. DA 2-4001, NE 2-7582. E
APT, 1-bdrm., unfurn., aaraae, refria., water & trash pd., close to Northrop, \$99 mo. DA 9-0314. E
HOUSE, 2-bdrm., 2 adults, 1 child, no pets, near school & bus service, \$90 mo. OR 7-3884. E
APT, 1-bdrm., unfurn., all extras, closed aar., Torrance, \$92.50 & \$95 mo. FR 5-0867. E
HOUSE, 2-bdrm., unfurn., aar., enc. yd., block from Ocean in Manhattan Beach, \$110 mo. FR 9-4517. E
HOUSE, 3-bdrm., 1 1/4-bath, fenced yard, 2 miles from Northrop, \$160. OS 6-7943. E

RENTALS WANTED

CABIN at Crestline or Arrowhead for family of 4. FA 1-3876. F

PERSONALS

FLY to east coast via Ohio for Christmas vacation, need rider, instrument, commercial rated pilot flyina Meyers 200A. 397-6326. L

I WISH to thank my many friends at Northrop for all the aet well messaaes & phone calls during my brief illness. EVELYN M. MARTIN. L

ANYONE witnessina an automobile collision Tuesday afternoon, Nov. 17 at approx. 4:30 p.m. on eastbound El Segundo Blvd., just west of San Diego Fwy., please call GR 4-9790. L

FOR SALE OR TRADE

REDUCING TABLE, Slim-Form, Broadway deluxe model, 2-spd, movable section & vibrator, \$90 or trade for power lawn-mower or men's aolf clubs. 375-9657. M

Saves Time, Earns \$\$\$



JUST IN TIME FOR CHRISTMAS—Suggestion by G. F. Ragatz, left, Assembly stores, saves time, saves material and earned award check for \$449. He is here being congratulated by Jack Mannion, manager, Manufacturing Materiel department, and by George Reeder, chief, Project Coordination and Assembly stores group. Mr. Ragatz's idea eliminated complete bookkeeping and storage step by routing nutplate parts flow direct from fab to assembly with no paperwork or handling stop-overs in between.

Signups Now Being Taken For NRC Ballroom Class

NRC dance class registrations are still in order, it is reported by Mel Allbrant, commissioner.

Cost for ten weeks is \$10 a person.

Two Thursday classes are being scheduled for the NRC Clubhouse with both sessions being taught at beginners level.

The first class meets from 7:30 to 8:30 p.m. for lessons in the western swing, and from 8:45 to 9:45 p.m. for the samba.

The second class meets from 8:45 to 9:45 for the samba, and from 10 to 10:45 for the mambo.

All Northrop personnel, singles or couples and from all divisions, are invited to participate.

Bill Martin is the instructor. Partners are assured through use of the group teaching method.

Cafeteria Musical Interlude



MUSIC TEAM—Joanie Cohn, nine, daughter of Norair's Mr. and Mrs. Maurice Cohn, Technical, teams with George Eichorn from the Martin Edwards Music salon to bring two days of VIP lunch time music to the Norair cafeteria. Here Joanie plays the piano while Mr. Eichorn has a go at the organ. VIP program brings variety of entertainment, informative displays and presentations, all culminated to help make lunch at the cafeteria a don't miss must.

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, December 23, 1964

HAWTHORNE

EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

New Corporate Boost for Company's I-R Programs

Northrop's advanced industrial relations program—traditionally devoted to the idea "our people are our greatest asset"—has taken another step forward to assert the Company's continuing interest in the progress and advancement of its employees.

President and Chairman Thomas V. Jones has announced the establishment of a unified Industrial Relations function at the Corporate level and the creation of the position of Corporate vice-president, Industrial Relations. William Larrabee, a senior Corporate officer with 22 years of service and long association with Northrop's Industrial Relations activities, has been named to the new office. Mr. Larrabee formerly was Corporate vice-president, Legal.

"Mr. Larrabee's appointment

reflects the Company's intention to make certain that Northrop's people continue to receive the respect, dignity and understanding they deserve and to assure they continue to receive benefits and opportunities commensurate with others in our industry," Mr. Jones said.

"I have asked Mr. Larrabee to devote the full energies of this new Corporate office to achieving a list of goals that will give new significance to the 'Northrop is a good place to work' slogan.

"These objectives include: assuring opportunities on a Corporate-wide basis to people showing outstanding merit and initiative; administration on a Company-wide basis of wage, salary and fringe benefit practices; continued emphasis on the Company's activities and policies in

the field of fair employment; the amplification of the Company's programs in the field of education and career development; and broadening of communication channels so that the men and women of Northrop may know each other better and have the benefit of the exchange of ideas and counsel."

Mr. Larrabee is a long-time member of the Northrop organization. When Northrop Corporation acquired Radioplane Company (now the Ventura Division) in 1952, Mr. Larrabee was executive vice-president and general manager of that company. He continued in that capacity until 1957 when the Northrop Corporate office was formed. At that time he was elected Corporate vice-president, Legal and assigned general review and supervision of industrial relations policies as one of his functions. In his new assignment, he will devote his full time to focusing the highest degree of Corporate interest in an advancing industrial relations program.

Merry Christmas

To All Northrop Personnel:

As we near the end of another year of working together at Northrop, I wish to express my appreciation for the contributions each of you has made toward attainment of our goal of a stronger and ever advancing company.

We moved ahead on many fronts in 1964, and with your continuing efforts we can look forward to even greater progress in 1965.

Mrs. Jones and I extend to all of you and your families our warmest greetings for the Christmas holiday, and our best wishes for a happy New Year.



Thomas V. Jones
Chairman, President and
Chief Executive Officer

To the people of Northrop Norair and NSL:

Best wishes for a Merry Christmas and a happy New Year.

With our time-honored yearend holiday just a few days away, it is traditional and fitting that we take a moment to review our accomplishments during the past year and to look earnestly forward. It is a time to take stock, gauge our efforts, and pace our progress.

We have every reason to say "well done" for 1964. The T-38 and the emerging F-5, both performed brilliantly throughout with their durability, low attrition rate, high ready rate, and all around utilitarianism.

Customer satisfaction is evident on every hand.

Northrop Space Laboratories is to be congratulated for successfully competing in the Brown-Root / Northrop NASA support contract. Norair has done equally well with the M-2 and the HL-10.

Our schedule and contract commitments were maintained faithfully all year. We contributed significantly to the scientific and technological advancement of the nation. Our costs remain competitive.

These things demonstrate our character, our enduring worth as an industrial team, and we take justifiable if modest pride therefrom.

We will continue to make needed and valuable contributions to our country and the free world.

Mrs. Horner and I wish all of you and your families a joyous holiday.

Richard E. Horner
General Manager
Northrop Norair and NSL



Happy New Year

Four Corporate Officers in New High-level Assignments

New assignments and responsibilities for four Corporate officers have been announced by Chairman and President Thomas V. Jones.

In these new assignments Robert R. Miller, formerly senior vice-president, Administration, will become senior vice-president, Corporate Relations; Richard R. Nolan has been named to a new position of Corporate vice-president, Manufacturing and Administration; William Larrabee, formerly Corporate vice-president, Legal, has been appointed to the new position of Corporate vice-president, Industrial Relations. Mr. Larrabee will report to Mr. Nolan.

George Gore, who has been Corporate secretary and assistant corporation counsel, has been promoted to fill Mr. Larrabee's former position. His new title will be vice-president, General Counsel and Secretary.

Mr. Miller will act as the senior representative of the presi-

dent's office in policy level relationships with subsidiaries and with groups or individuals representing trade associations or civic, government or industry organizations.

The new assignments have
(Continued on Page 5)



ROBERT R. MILLER



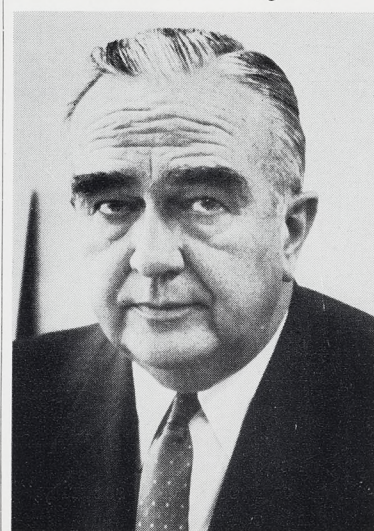
RICHARD R. NOLAN

Long Service Records for Nolan, Gore

Two Corporate officers who have been with Northrop from the Company's earliest days have been appointed to important new offices.

They are Richard R. Nolan, formerly Corporate vice-president and general manager of Northrop Norair, who has been named Corporate vice-president, Manufacturing and Administration, and George Gore, formerly Corporate secretary and assistant corporation counsel, who has been promoted to vice-president, General Counsel and Secretary.

(Continued on Page 5)



WILLIAM LARRABEE



GEORGE GORE



HONORED FOR THEIR YEARS—Tom Chittenden, assistant superintendent, nights, Materiel, August 20, 1939; Thomas H. Quayle, assistant to senior vice-president, Administration, August 21, 1939; Richard R. "Dick" Nolan, Corporate vice-president, August 28, 1939; and Bob Catlin, manager, Quality Control, October 2, 1939, are applauded by anniversary dinner crowd as being the top four in the Company in the number of years served. The men were introduced by President Thomas V. Jones.



GENERAL SCHRIEVER—Distinguished guest and speaker for the evening was General Bernard A. Schriever, commander, Air Force Systems Command. He complimented the Northrop team for its long standing record of aerospace contributions. Note seven-layer birthday cake six feet high topped with 25 white roses.



ANNIVERSARY CELEBRANTS—Mr. and Mrs. Walter Gage, Northrop Credit Union, and Mr. and Mrs. Tom Chittenden, Norair Materiel, pause for photo in Ambassador Hotel lobby during Company's 25th anniversary celebration. Both Mr. Gage and Mr. Chittenden were honored as being among the 18 men who first achieved 25 years service. Mr. Chittenden is top seniority man at Northrop.

Service Honors for 18 At Silver Anniversary

GENERAL SCHRIEVER SPEAKS ON AEROSPACE FUTURE

More than 1200 men and women from all divisions and organizations of Northrop gathered at the Ambassador Hotel's Coconut Grove and Embassy Room last week to honor the Company's first quarter century of service in the aerospace industry.

At the same time the crowd — the largest Northrop dinner gathering on record — paid special homage to 18 men who have served with the Company from the first year of its existence, March 7, 1939 through March 7, 1940. Diamond-studded 25-year pins were presented to each man, the first to receive these tokens of the Company's appreciation.

Each of the 18 also received a large plaque with congratulatory messages from the Secretary of the Air Force, the Secretary of the Navy, and the Army Chief of Staff.

Northrop President and Chairman Thomas V. Jones introduced each man in turn, describing his work history with the Company and present position. The presentation was climaxed by a standing ovation from all present.

Leading the 25-year service group with the longest service record with the Company was Tom Chittenden, night assistant superintendent, Materiel. He came to work for Northrop on August 20, 1939.

The affair was graced by a huge seven-layer cake displayed on the dais behind the speaker's table. More than six feet tall the cake was crowned with 25 white roses.

Distinguished guest and speaker for the evening was General Bernard A. Schriever, commander, Air Force Systems Command.

George Gore, Corporate secretary and assistant corporation counsel, was master of ceremonies. Mr. Gore, as an attorney in the law firm of O'Melveny & Myers, was one of the original signers of the corporation papers. He came with Northrop shortly after operations commenced, November 18, 1940.

Mr. Jones in his remarks honoring the eighteen 25-year men, paid high tribute to John K. Northrop.

Mr. Jones said, "I believe the most important single element of the Company's continuing strength is the unique relationship that has always existed between and among people at Northrop."

"I want to give special credit tonight to the man whose personality and character first implanted it at Northrop—the founder of the Company and the man whose name it bears, Jack Northrop."

The Company, Mr. Jones said, "has always preferred to be on the crest of a wave moving forward into unknown territory rather than to follow the tides of others after they have won popular approval."

"I know you join me in re-dedicating Northrop to another 25 years of adventuring on the forefronts of technology in behalf of our country's security," Mr. Jones concluded.

General Schriever, in his ad-

dress, generously complimented the Company and its personnel for a long-standing record of aerospace contributions. He also issued a challenge to the future stressing the importance of vision, courage, and "can do" in keeping pace with fast moving technological advance.

He stated that, "—the world is on a new threshold in aeronautics. We haven't scratched the surface yet."

He called to mind that even in aviation infancy, the famous inventors Orville and Wilbur Wright said that they didn't believe an efficient airplane could be achieved.

It remained for business man and entrepreneur, John Jacob Astor, to correctly foresee the importance of flight. He prophesied after Kitty Hawk that some day all manner of goods and

people would be transported by air.

The general cautioned that technology "doesn't move forward automatically. All people are involved," he stated. "People determine the rate of advance. We must put to route the timid souls."

Speaking of new materials as one of the keys to aerospace progress, General Schriever told about the use of boron fibres with a plastic binder for greater strength and less weight. "This can be the greatest materials advance in 3000 years," he said.

He also told about oxide dispersed metals wherein the molecules grip each other more securely than in normal compounds thereby retaining integrity under high temperatures.

FUTURE OF AEROSPACE TECHNOLOGY

Salient points made by General Schriever in his address:

- Experimental work in Laminar Flow Control for the X-21 aircraft looks very promising . . . has potential of increasing range in the order of 50 percent.
- A forward-looking and adventurous attitude . . . has been responsible for the growth Northrop has achieved over the past 25 years . . . and if history is any guide, the changes we can expect during the next 25 years will be even more momentous and far-reaching than those of the last 25 . . . Technology is moving ahead at an ever-increasing pace. The potential advances in technology are very great indeed.
- Northrop contributions to our aerospace strength:

The Air Force T-38 trainer, and the F-5 tactical fighter which will be delivered to Allied nations under the Military Assistance Program.

A wealth of technical knowledge.

Experience acquired in such fields as guidance, computer systems, precision optics, and fire control.

Ability to take the knowledge gained in one program and apply it in later programs.

Snark missile experience led to new technology now employed in today's space and missile systems.

- Advances in materials are basic to advances in other technical areas.

- Of great interest is the development of high-speed, high-precision aircraft navigation equipment for use at low altitudes.

- Computer technology—bringing a revolution in almost every aspect of military operations . . . forecast studies have indicated that advances in computer technology can permit users with little knowledge of computer technology to make direct use of the machines, thus bypassing the programmer. The most prom-

ising possibility is the "pre-programmed" or "implicitly programmed" computer.

• Cannot afford to relax our efforts in technology. Soviet leaders have repeatedly stressed the importance of technology to their drive toward world domination. As a result they have an extensive program for educating scientists and engineers, and they turn out from two to three times as many as we do every year.

• For ten years the Soviet Institute of Scientific and Technical Information has been publishing a Journal of Abstracts. They process over 700,000 scientific and technical articles for this purpose every year.

• The key to what will take place lies in the quality of people we have . . . Quality includes both ability and attitude.

• Skilled and experienced people will be more in demand than ever before. But even more important to our progress are the people with the "can do" attitude. They are the ones who refuse to be bound by arbitrary limitations, who keep their eyes on the future, and who have the imagination and creativity to make their dreams a reality.

"As long as we keep our vital spirit of daring and adventure, I believe that there are few limits to what the future may hold," the general said.

NORTHROP NORAIR NEWS

VOL. 22

NO. 21

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A NORTHROP CORPORATION
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NORAIR DIVISION

Published every other Wednesday

CHARLES BRADFORD, Editor

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BIRTHDAY DINNER

TWENTY-FIVE YEAR MEN

Northrop men with 25 years service who were introduced by Mr. Jones at the Company's 25th anniversary dinner:

From Corporate office—
Thomas H. Quayle, assistant to senior vice-president, Administration, hired in August 21, 1939.

Richard R. "Dick" Nolan, Corporate vice-president, August 28, 1939.

From Norair Division—
Tom Chittenden, assistant superintendent, nights, Materiel, August 20, 1939.

Robert S. "Bob" Catlin, manager, Quality Control, October 2, 1939.

Walter T. Gage, secretary-treasurer, Credit Union, October 2, 1939.

C. Paul Bonham, engineering specialist, November 16, 1939.

Melvin N. Brown, senior electronic technician, December 18, 1939.

Rex A. Bohling, buyer, Outside Production, January 11, 1940.

Frederick P. Griswold, buyer, Outside Production, January 11, 1940.

Harold L. Miller, general foreman, nights, Plant Maintenance, January 16, 1940.

Carl E. Liedtke, general foreman, nights, Machine Operations, February 12, 1940.

Don H. Anderson, foreman, Plant Maintenance, February 14, 1940.

J. A. Richardson, coordinator, Materiel Operations, February 15, 1940.

John S. Breneman, director, night Operations, February 26, 1940.

Wood Jones, foreman, Advanced Production, March 7, 1940.

From Nortronics—
Paul M. Streib, senior engineer, January 9, 1940.

John T. Foote, Materiel Subcontract representative, February 17, 1940.

William A. Boyes, night superintendent, Precision Products, Norwood, Massachusetts, February 19, 1940.

I-M-S TO SPEED INFORMATION FLOW ON NORAIR PROGRAMS

Integrated Management Systems (IMS), Norair's long range plan for increased efficiency in information flow, is moving into a new phase of activity.

The program when complete will provide information in many specialized forms to practically all organizations of the Division; Technical, Operations, Administration, Quality Control, and Finance.

IMS implementation has been recently effected on such functions as Automated Master Parts Listing and Configuration Management, both in Technical; Basic Material Requirements Generation and Automated Bills of Material, in Manufacturing/Material; and Improved Data Interchange in Product Support.

Now major plant efforts are under way to further expand the program. Product Support, Frank

Mathes, manager, will increase use of the computer to aid all Product Support activity. Manufacturing/Material, Jack Mannion, manager, will proceed with computer data applications in the functions of Planning, Ordering, Scheduling, Material Control, Product Control and Manufacturing Cost Accumulation. Technical is adding to its administrative data system for the organizations under Welko Gasich, vice-president and assistant general manager-Technical.

These new additions constitute follow-on IMS steps of which AOC (Automated Operations Control) was the first.

AOC, now completely time-tested, provides up-to-the-minute status information on the thousands of in-process production orders for management and customer use. It has been invaluable in eliminating shortages on the

line, maintaining schedules, and assembling data for contract performance and customer reporting.

In discussing the IMS expansions, Norair General Manager Dick Horner stated, "Modern data technology applied to various Norair operations during the past three years, has proved conclusively that the Division will benefit greatly by IMS and computerization of status facts wherever feasible and possible."

"Program aims are threefold: We wish to permit the utmost effectiveness from the efforts of our highly skilled personnel team. We want to maintain Norair's top competitive position in the defense market. And we want to stay closely attuned to customer needs for current and reliable product data."

Mr. Horner, commenting further, called attention to the increasing government requirement for fast reaction contractor capability to properly support such new and improved management techniques as PERT, PERT/Cost, Incentive Contracting, and Configuration Management.

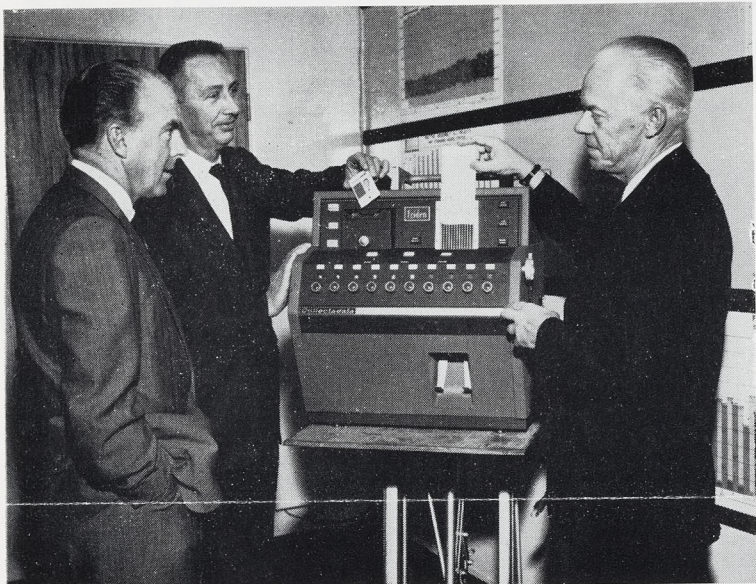
"These decision-making tools have been skillfully developed by DOD, by NASA, and the Departments of the Air Force, Army, and Navy," Mr. Horner stated. "And they are a vital part in determining program directions."

Another important IMS factor, it was explained, is the sound management of the multi-customer contracts the Division has now in force for the F-5 fighter where the basic airplane must be produced in several configurations and where production, and logistics supply and support require data processing speed that only IMS can attain.

Prime responsibility for the current IMS implementation has been assigned to effected department managers. Future program development will draw heavily on the office of J. Grant Macdonnell, Division treasurer—for business systems know-how; and from Milt Stone, director, Corporate Management Information—for professional and service support and for the most effective application of computer technology.



FUTURE SCIENTISTS—A group of top high school science students from the Los Angeles area visited Dr. Lindberg's NSL Bioastronautics Lab recently as part of their preparation for the annual Christmas lecture series sponsored by the Association for the Advancement of Biomedical Education. Here Dr. Lindberg explains radiation effects on chromosomes to Ron Wilkerson, El Monte Hi; Paul Lissauer, Morningside Hi, Inglewood; Frank Baudino, Notre Dame, North Hollywood; and Bert Weiner, Beverly Hills. In background is NSL's Dr. Dyer.



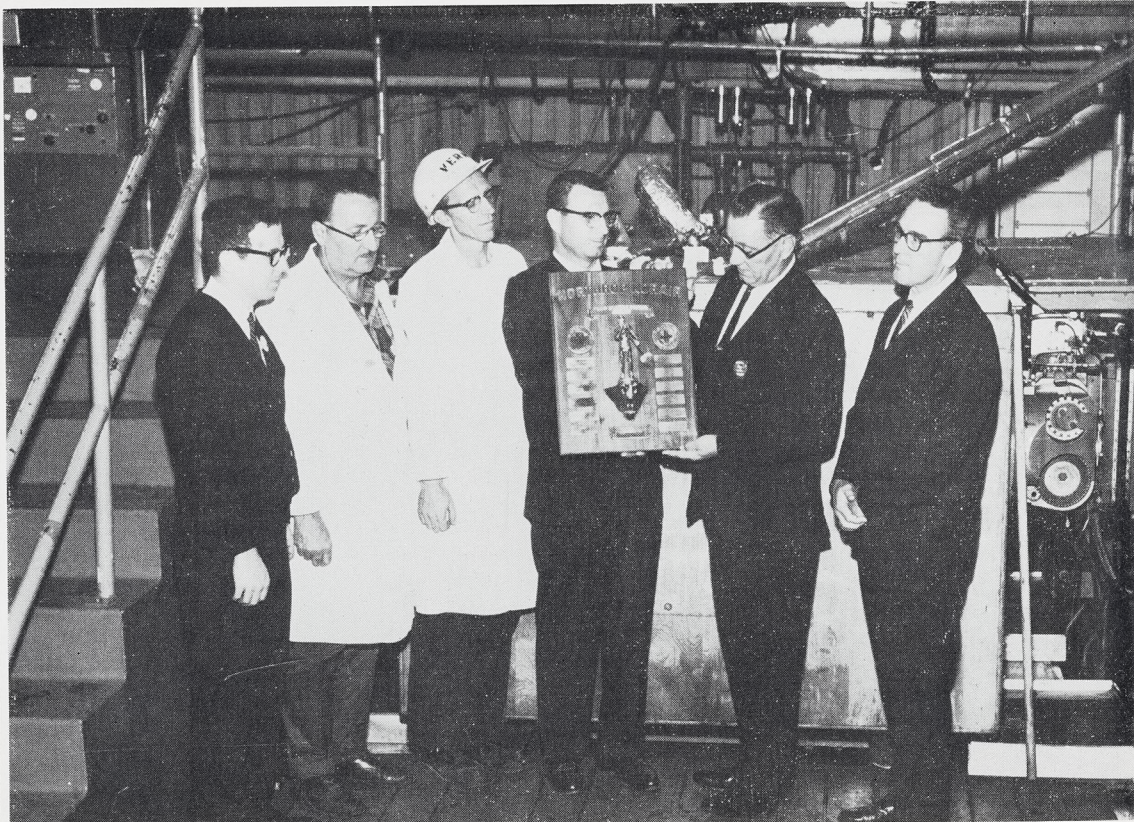
THE NEW AOC TRANSMITTER—Here Jack Mannion, manager, Manufacturing Material; Carl Yates, chief, Manufacturing Control; and H. E. "Hap" Herdrich, IMS project, check operation of the new Friden AOC transmitter. New plastic ID badges will be used in conjunction with "traveler" card for computerization of status information. Machine reconciles labor against proper charge numbers and speeds up management reporting. (See story.)



AOC STATION—Mary Watson, Manufacturing Control, reads status information as being reported on present Friden AOC transmitter. Note busy assembly line in background. New transmitters (see photo above) will have broader scope, simplified operation.

Neatest and Cleanest

GOOD HOUSEKEEPING SWEEPSTAKES WINNER—Neatest and cleanest in the plant for the month of October was Organization 3940, Laboratory services, so voted by Norair Safety committees. Key men on the program are shown here being honored in plaque presentation by John Breneman, director, night Operations and chairman of the Norair General Safety committee. From left, Howard Hyde, Ray Warner, Vern Johnson, Phil Hartman, Mr. Breneman, and Larry Pieper, Laboratory services supervisor. Honorable mention awards for the month went to Plumbing and Mechanical Subassembly; Receiving; Mari-posa Warehousing; and Tool Design and Fabrication.



NSL Aids Science Students Prepare For Space Panels

Life in space is not "just a bowl of cherries." Indeed not.

This became graphic and real to four top Southland high school science students last week who came to Northrop Space Laboratories for tour and space biology briefings. Dr. Robert Lindberg, head, Bioastronautics Laboratory, was host.

The group brought to NSL by Gordon Peterson, science teacher and student coordinator from San Marino Hi, was composed of Paul S. Lissauer, Morningside Hi, Inglewood; Ron Wilkerson, El Monte Hi; Bert Weiner, Beverly Hills Hi; and Frank Baudino, Notre Dame Hi, North Hollywood.

Object of the visit was preparation of topics the young students will present at the upcoming Christmas lecture series to be held in Exposition Park, December 21 and 22. The lectures are sponsored by the Association for

the Advancement of Biomedical Education which is affiliated with the Southern California Industrial Education Council.

Dr. Lindberg will moderate the panel on space biology in which the four students will speak on exobiology, weightlessness, radiation, and biorhythms.

Three other student panels will deal with marine biology, aging, and pathways of learning.

Next preparation meeting will be in the nature of a rehearsal and will find Dr. Lindberg assisting his four charges individually in perfecting the finer points of their subject.

Then comes the big day at Exposition Park.

The audience will consist of other high school honor students from the Southern California area whose interest will bracket the complete technology spectrum and promote a lively question and answer period.

CHRISTMAS GIFT PROGRAM ASSURES THAT SANTA WON'T SKIP NEEDY ONES

The Christmas Gift program (formerly the Adopted Family program) was in high gear at presstime with 40 Northrop families slated for a bountiful Christmas. Families that would

have otherwise due to unfortunate circumstances been omitted in Santa's yearly Christmas Eve rounds.

Efforts of 71 Northrop organizations will be rewarded with

shining eyes and overflowing hearts of 94 little girls and 63 little boys when the youngsters wake up Christmas morning to bulging stockings and trees loaded with presents.

The total inventory of department contributions were on view at the Product Display building on Monday, December 21 from 7:30 a.m. to 4:45 p.m.

Thursday, December 18 was deadline for cash donations.

Christmas Gift program chairman is Ed Bates, Quality Control.

Yearend Holiday to Start At End of Shifts, Dec. 23

With the two floating holidays saved and now added, the yearend holiday is just around the corner with 11 full calendar days ready and waiting for relaxation and time with the family, a trip to the beach, to the mountains, desert, or a drive back home to Oklahoma for "native" Californians.

One group, under the capable wing of the NRC Travel Club will be found in Hawaii. Another, the NRC Golf Club, will drive to a tournament at Torrey Pines. The bowlers will be pinning up strikes and spares at the Missile Bowl in Gardena. The campers will be hot footing it across the "burning" sands of Death Valley.

The exodus will be general and complete. Only emergency personnel from Plant Maintenance and Plant Protection, will remain at the plant.

Some points to remember, just in case.

Group Insurance offices will be closed. If you are going to the hospital and know about it make arrangements now. At least get admission forms if you think you will need them.

The Norair hospital and all dispensaries will be closed.

For any blood bank need or for hospital verification that you are a Northrop blood bank member, call 2141. Plant number is 678-9111. Area code is 213.

The cafeteria will be closed.

Personnel Activities will be closed. Yearend holiday activities are "go" as scheduled, however.

And before you leave—

Dispose of department Christmas trees and decorations. These must be fire retardant, incidentally. Plant Protection was instructed to ban those that weren't.

Perform a safety inspection the last thing on December 23. Things that can cause trouble—running water; leaking air; leaking gas bottles and manifolds; running motors and/or machines including computers, adding machines and typewriters; plugged in coffee pots; open windows; rain; fruit, sandwiches, candy in your desk, bench or locker; furnaces, melting pots, soldering irons; chemicals; oily rags; waste, wastepaper.

There are hundreds more.

High-level

(Continued from Page 1)

been made as the result of a review of Corporate office activities in which all members of corporate management participated. The review was conducted under the leadership of Mr. Nolan at the request of President Jones.

This review will be a continuing effort as a means of keeping the Company's effectiveness in step with the industry's competitive and changing environment. Mr. Jones said.

When you make that check, make like you were at home, and you will be making points with your supervisor. Remember he goes on vacation too. And when there's trouble at the plant, he stands to get called back.

And another thing to do before you leave—perform a security inspection. Make sure that all classified material, documents, drawings, whatever, are properly stored and the containers locked.

A word about paychecks. They will be available in plenty of time before you go. Your department clerk will have the schedule.

A pleasant surprise that many people forget is that there will be two checks—the regular weekly check and the yearend check. The weekly check \$\$\$ will be "business as usual" with all deductions in force, but that happy yearend check will be fatter with no deductions out for NRC, Credit Union, tools, or bonds.

But don't overdo the free spending. Tend your personal budget with care for when we come back Social Security and State disability taxes start again and this comes as quite a shock sometimes.

Dr. Ballhaus To Presidency of Beckman

Dr. William F. Ballhaus has resigned as executive vice-president of Northrop Corporation, effective December 31, to accept the presidency of Beckman Instruments, Inc., of Fullerton, California. Dr. Ballhaus will continue as a member of the Northrop board of directors.

In announcing Dr. Ballhaus' resignation, Chairman and President Thomas V. Jones said, "Bill Ballhaus and I have either worked together or been very close to each other for over 23 years. In the last 12 years together at Northrop we have shared many trials and successes working closely with each other. I know I speak for everyone at Northrop when I say that all of us wish Bill every success in his new challenge."

Functions of the office of executive vice-president have been distributed among other officers of the Company.

Dr. Ballhaus joined Northrop in January 1953 as assistant chief engineer. He was elected vice-president and chief engineer of Norair in 1957 and shortly afterwards advanced to the position of Corporate vice-president and general manager of the newly-formed Nortronics Division. He was elected executive vice-president in 1961.

Nolan, Gore

(Continued from Page 1)

Both Mr. Nolan and Mr. Gore will report directly to Chairman and President Thomas V. Jones.

Mr. Nolan is Northrop's third oldest employee in terms of seniority. He was one of the eighteen 25-year employees honored at the recent anniversary banquet at the Hotel Ambassador.

The Norair Management Club at its December 4 meeting presented Mr. Nolan with the coveted "Mug-of-the-Month" award as a token of respect and appreciation.

In his new job Mr. Nolan will establish and administer Corporate policies and practices in the areas of manufacturing, facilities, materiel, quality and reliability, industrial relations, organization and management methods, data processing and general administration.

"Mr. Nolan's 25 years of experience in Company operations will enable him to be of great service in providing all of the operating divisions with Corporate guidance in the areas assigned to him," Mr. Jones said.

Mr. Gore who has been with Northrop 24 years has been promoted to fill the position formerly held by William Larrabee, who has been named Corporate vice-president, Industrial Relations.

Mr. Gore is a graduate of Harvard College and Harvard Law School. He joined Northrop in 1940 as its resident legal counsel. Within two months he was elected assistant secretary, and in 1945 was elected secretary.

Contracts On NIKE-X, Lunar Work

Receipt of two new contracts—one involving the NIKE-X and the other lunar research—was announced last week.

The NIKE-X contract is in the amount of \$746,082 and calls for technical assistance and support services to the Army's Project Office at Redstone Arsenal, Huntsville, Alabama. Northrop's work on the anti-missile missile system development project will be performed at Huntsville under A. C. Wallen, NIKE-X project manager for the Company.

Northrop Space Laboratories was awarded the lunar research contract by NASA's Langley Research Center at Hampton, Virginia. The 12-month contract, in the amount of \$242,000, is for experimental research to study

Do-It-Yourself Bike Test Might Keep Junior Clean

Is your child old enough to understand his responsibility in traffic?

Will he keep his bike in good shape?

Will he practice a safe bicycle-driver's code?

Will he get proper traffic instruction in bicycle safety before he is permitted to ride in traffic?

Does he live in a safe area, one not heavily congested in traffic?

Are there safe places for him to ride a bike near home such as empty lots, bicycle paths or marked areas?

If you can't answer all these questions with an affirmative reply, then your child is not ready for that Christmas bicycle this year, the Automobile Club of Southern California advises.

On the other hand, if the answer to all the questions is an unqualified "Yes," then find the right bicycle and buy it.

The two most important things to consider in buying a bicycle for your child is does it fit the child and is it equipped for maximum safety.

Safety equipment which every bicycle should contain are a headlight, tail-light or reflector, warning bell, chain guard and a coaster brake for small children.

After the bicycle is given to the child the parent should sit down and review the basic rules of safety with the new owner.

Along with these the Auto Club has prepared a list of 10 rules which, if followed, will make cycling safer and more enjoyable for the new bike owner.

The rules are:

1. Keep your bicycle in good mechanical condition (tires, chain, brakes, etc.).
2. Obey all traffic rules and signs and always give proper hand signals.
3. Walk your bicycle across busy intersections.
4. Always ride with the traffic—as close as possible to the right side of the road.
5. Be sure the roadway is clear before entering.
6. Always ride single file and watch for opening car doors.
7. Most bicycles are built to carry one person—YOU! and you alone.
8. If you must ride your bike at night, be sure your headlight and rear reflector are in good working order.
9. Select the safest route to your destination and use it. Avoid busy streets and intersections.
10. Yield right of way to pedestrians.

And remember that the California Vehicle Code prohibits riding a bike with 20-inch wheels or over on the sidewalk. Not many citations are issued, but get out the checkbook if Johnnie Jr. hits a little old lady out for a stroll. You've had it, dad.

Norair's Dr. Wong Heads AIAA Lecture Committee

Three technical sessions on the Apollo project have now been concluded at the American Institute of Aeronautics and Astronautics auditorium on Beverly Boulevard, states Norair's Dr. C. M. Wong, who is chairman of the Association's lecture series committee.

Dr. Wong is chief of Norair's man's physical capabilities on the moon.

The study will require the construction of a lunar gravity simulator suspended from the top of the five-story NSL research building at Hawthorne where all experiments will be conducted.

Structures and Auxiliary Systems group.

The sessions were held December 1, 10, and 15.

The program for early 1965 is under discussion and will include lectures on lunar bases and supersonic aircraft.

Other Northrop personnel who are taking part in the AIAA lecture projects are Roy P. Jackson, Northrop Space Laboratories vice-president and assistant general manager; Dr. C. Hwang, Norair senior scientist; and Frank Pollard, Northrop Space Laboratories.

The AIAA auditorium is located at 7660 Beverly Boulevard.



RIDES WANTED

7 a.m. — 3:45 p.m.

ORANGE & 37TH ST., Long Beach. G. J. Grummer, ext. 545, GA 4-6383. 2
MAIN ST. & 223RD ST., Torrance. Uiese Tausaga, ext. 2581, 835-7369. 2

8 a.m. — 4:45 p.m.

HAWTHORNE & SEPULVEDA BLVDs., Torrance. Myrtle Stadler, ext. 2521, 378-6300. 5
CHAPMAN & EUCLID AVE., Garden Grove. Jerry Evans, ext. 1338, JE 4-3369. 5

SAN DIEGO FWY. & SANTA MONICA BLVD. ON-OFF RAMP, Santa Monica. E. E. Koons, ext. 2751, EX 4-3345. 5

RIDES OFFERED

8 a.m. — 4:45 p.m.

CHAPMAN & EUCLID AVE., Garden Grove. Jerry Evans, ext. 1338, JE 4-3369. 15

SAN DIEGO FWY. & SANTA MONICA BLVD. ON-OFF RAMP, Santa Monica. E. E. Koons, ext. 2751, EX 4-3345. 15

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

BABY CRIB, large w/mattress, \$20. 348-4874. A

VOLKSWAGEN sedan, 113 deluxe model, 1961, 2-dr., 23,000 miles, \$1100. WE 4-8590. A

PONTIAC, 1962 Tempest Le Mans, new tires & battery, p/s, b/s, \$1395. DA 4-0156. A

TELEVISION, 21" Zenith console, \$35. AX 1-6653. A

HOUSE, 3-bdrm., 2-bath, GE kitchen, patio, newly decorated, fireplace, fruit trees, near schools, 1650 sq. ft., \$42,750. 883-9747. A

WASHER, 1961 Kenmore auto., deluxe model, white, used 1 yr., \$125. DA 3-6523. A

TR-3, 1960, new tires, \$1075. 596-3980. A

WASHER, wringer-type, \$20. ME 3-2395. A

OLDSMOBILE, Super 88, 1961, 4-dr., Holiday sedan, r/h, p/s, p/b, \$1500. OS 5-5067. A

PLATFORM ROCKER, maple, \$20. OS 6-2162. A

DINING SET, table w/4 chairs, \$10. PL 7-4305. A

CHAIR, Danish modern, tura. Nauqua-hyde, \$25. OR 8-0766. A

CORVAIR 700, 1960, auto., r/h, w/w, 28,000 miles, \$800. 676-3138. A

LIVING ROOM SET, 2-pc., modern rose frieze, \$35. OR 4-6900. A

LET'S NOT GO MISQUOTING UNCLE SAM

How many readers pondered the inconsistency in December 2 issue, page 3, in the Savings Bond question and answer article?

We reprint:

Question:

Is the Federal income tax on the accrued interest on Series E bonds deducted at the time they are cashed?

Answer:

No. You are required to list your taxpayer identification number (usually your Social Security number) when you redeem an E bond, but this is not mandatory . . .

Whoops! . . . You've gone far enough. Substitute "requested" for "required" and everything will be just fine. (Darn those type gremlins, anyway.)

FOR SALE

CADILLAC, El Dorado, 1956, r/h, new tires, rebuilt trans, full power, factory air, \$550. 531-5170. A

TYPEWRITER, Underwood elec., auto. margins, 16" carriage, \$50. 757-2460. A

TV, RCA, 16", cabinet, needs new picture tube, \$5. 835-1031. A

HOUSE, 3-bdrm. & family rm. w/fireplace, 2 baths, 1550 sq. ft., Canoga Park, \$23,500. 430-7721. A

COFFEE TABLE, walnut pedestal, round, 42" dia., Neva-Mar top, \$50. Box 2101. A

FORD, 1953 convt., \$50. OR 2-7228. A

POODLE, 9-mo.-old male, AKC reg., toy size, \$90. 457-2979. A

BICYCLE, boy's, 24", \$15. FA 8-1054. A

BICYCLE, boy's, 26" Huffly, balloon tires, coaster brake, \$20. Box 2102. A

CRIB & MATTRESS, maple, \$10. 673-4150. A

TRANSMISSION, 1963 Corvette, 3-spd., complete w/linkage, etc., \$200. 835-5052. A

POWER MOWER, Craftsman 18", reel-type, 2-yr.-old, \$50. 372-4177. A

FORD station wagon, 1955, smoa device installed, \$125. OS 5-8062. A

BICYCLE, girl's, 24", American made, recond., \$18. Box 2103. A

FORD, 1958, 6-cyl. coupe, stick shift, new tires & battery, \$350. DA 7-0786. A

REFRIGERATOR, Coldspot, 7.4 cu. ft., \$20. 371-8907. A

WASHER, Kenmore, copper-tone, auto., \$25. EX 6-9082. A

BICYCLE, boy's, Schwinn, 24", \$20. PL 6-3002. A

TYPEWRITER, port., Smith-Corona Skywriter, \$25. 670-7496. A

ACCORDION, 120-bass, \$100. EX 1-2040. A

SHOTGUN, Remington auto., model 11, 2 chokes, recoil pad, leather case, 12 ga., \$100. 454-2057. A

BICYCLE, 26", girl's, Schwinn, \$25. FR 2-1632. A

BABY FURNISHINGS, playpen, portabed, jumpseat, etc., \$20. FR 5-9689. A

HOME, 3-bdrm., 1 1/4-bath, patio, landscaping, 2-yr.-old, \$39,500. FR 7-6458. A

BICYCLE, girl's, 26", lae. basket, \$12. 324-2992. A

TAPE RECORDER, port., transistor RA11, \$12. 675-3948. A

ORGAN, Hammond spinet w/percussion, walnut, \$895. ME 3-1981. A

RANGE, Gaffers & Sattlers auto., chrome top, \$100. DA 4-0161. A

LIMIT-ONE ITEM

ACCORDION, 120-bass, 5-switch on treble, 2-switch on bass, made in Italy, \$150. FR 6-8327. A

REFRIGERATOR, Servel aas, 12 cu. ft., \$15. DA 9-6039. A

MERCURY, 1956 2-dr. h/top, r/h, \$195. PO 2-7015. A

SWING for toddler, \$5. 329-9484. A

FORD sedan, 1953, r/h, \$55. PL 6-5180. A

FM TUNER, fruitwood finish, \$20. 323-8089. A

HOME, Palos Verdes Estates, Malaga Cove area, 2-bdrm. & den 2 1/2 baths, 2 fireplaces, 2800 sq. ft., \$62,000. FR 5-5097. A

DERAILLEUR, boy's 10-spd., tool kit, chain, lock, water bottle, \$65. PL 7-7911. A

STOVE, Frigidaire, elec., dble. oven, \$50. 923-9957. A

METROPOLITAN, 1960, r/h, 30 mpa., \$425. TE 3-2512. A

BICYCLE, boy's, Stina Ray, \$15. 376-5487. A

OLDSMOBILE, 1956, 88 Holiday club coupe, 1-owner, low milage, good tires, \$295. DA 9-3900. A

LAND, 200 acres, 35 mi. from Klamath Falls, 3 mi. approx. from Sprague River, 1/2 mi. from Sycan River, water, all or part, \$45 acre. 361-7541. A

TENOR SAX, aold Buescher, \$125. FR 4-6003. A

RUG, braided 10'x14' oval w/waffle pad, \$48. 883-8059. A

PIANO, practice upright, bench inc., \$40. DA 3-4257. A

RADIO for Volkswagen, custom deluxe, pushbutton, all transistor, \$49.95. OR 2-8014. A

YAMAHA, 1959, 250 cc, \$250. FR 7-2113. A

HOUSE, Westchester, custom rock roof, 3-bdrm., family rm., 1 1/4-bath, lae. yard, \$34,500. 645-4697. A

STEREO HI-FI components, AM/FM tuner, stereo turntable, dual amplifiers, preamps, crossovers, 4 speakers, \$66. OS 6-0418. A

YOUTH BED, mattress, spring, \$25. FR 8-1876. A

FORD, 1957 country sedan, 9-pass., r/h, auto., w/w, new brakes, T-Bird eng., \$325. PL 6-0015. A

MOTORCYCLE, 1961 BSA, super rocket, 650 cc, \$550. 320-0270. A

KITTENS, Siamese, seal points, 6-wks-old, \$15. 714-776-8785. A

FORD, 1959 V-8 country sedan, 2-dr., Cruise-O-Matic trans., r/h, \$550. 373-1333. A

Can You Spare Time for a Spare? Bowling Champ Tells How to Do

With summer gone, fall a memory and winter all about, you've probably dusted off your bowling shoes and stand ready for whatever the leagues of the season have to offer.

And you can do better this year.

If you recall last season, odds are you got your share of strikes. But you also got more than your

FOR SALE

STOVE, elec., full size, \$75. Box 2104. A

SKIS & poles, \$75. OS 5-7001. A

BICYCLE, girl's, 16" w/training wheels, \$10. Box 2105. A

END TABLE SET, maple, shelf underneath, \$20. 213-429-8264. A

STOVE, GE, elec., white, 28"x39", \$40. 292-8059. A

BICYCLE, girl's, 20" \$8. TE 1-2973. A

MGA roadster, 1961, r/h, new tires & tonneau cover, \$1050. 379-6035. A

CADILLAC coupe, 1959, air cond., p/s, p/b, r/h, new w/w tires, \$1800. 384-4017. A

STOVE, apt-size, aas, \$25. 675-1031. A

RIFLE, 22 cal. automatic w/4-power scope, \$19. DA 4-5422. A

DISHWASHER, Kenmore portable, used 4 mos., \$90. 377-5319. A

PIANO, upright, Conway, \$85. OS 5-1967. A

ORGAN, Hammond M-3 w/reverb. & ext. speaker, \$900. DA 4-6260. A

PLYMOUTH, 1955, new brakes, tires, top, seat covers, \$175. 378-5348. A

PICKUP, 1951 1/2-ton Chevrolet, 1953 eng., Powerglide & new tires, \$250. 374-3283. A

BICYCLE, boy's, 24", \$10. TE 3-7306. A

VOLKSWAGEN, 1960, sedan 113, 5 new tires, r/h, \$850. 757-7637. A

PORSCHE coupe, 1960 1600, r/h, headrest, \$2500. EA 2-2490. A

HOME, 4-bdrm., 3-bath, 2050 sq. ft., fireplace, ocean view, near schools, Palos Verdes Estates, \$47,000. 373-1143. A

VOLKSWAGEN, 1957 coupe, good paint, new tires, r/h, \$635. 372-5131. A

CHEVROLET, Impala, 1960, 2-dr. h/top, 350-hp, 4-spd., 4.56 positraction, r/h, \$1400. OR 0-2793. A

PIANO, Victorian square grand, rosewood finish, \$500 or best offer. PO 2-8580. A

FENDERS & running boards, 1961 narrow bed GMC 6 1/2' pickup, yellow, \$10. 754-4384. A

WANTED TO BUY

GUITAR, elec., without amplifier, in good condition. GR 3-1479. B

OUTBOARD MOTOR, 25 to 40 hp, long shaft, reasonable. 834-2845. B

SURFBOARD, boy's size, aae 14. 371-9730. B

FOR TRADE

BED, dble., bookcase headboard, mattress & box spring, trade for twin mattress & box spring. OS 5-2772. C

PARTS for Honda, \$100 worth, trade for a/an of equal value. 292-4044. C

FREE (to be given away)

DOG HOUSE, lae. size w/removable top, FR 4-2915. D

RENTALS OFFERED

HOUSE, 2-bdrm., aarb. disposal, fenced yd., 6'x10' storage room, 1 block from school, \$105 or \$95 w/12 mos. lease. OS 6-5921. E

DUPLEX, Playa del Rey, free rent to Jan. 1, 3-bdrm., unfurn. & furn., newly decorated, pvt. patio, encl. garage, \$160 & \$185. OS 9-5506, OS 5-2305. E

APT, unfurn., 2-bdrm., all extras, closed aar., pool & patio, near El Camino, \$120 mo. DA 9-5986. E

APT, 1-bdrm., 1 mi. to Northrop, unfurn., newly decorated, laundry fac., carport, no children, \$75 mo. OS 5-9695. E

APT, 2-bdrm., 1 1/4-bath., pvt. patio, free wash & dry, closed aar., W. Torrance, \$145 mo. 370-4778. E

HOUSE, 1-bdrm., unfurn., sep. dining room, water paid, Inglewood area, \$85. DA 3-4116. E

APT, 1-bdrm., unfurn. & furn., bachelor, sound cond., all extras, closed aar., Torrance, \$95 mo. FR 5-0867, 328-1271. E

APT, 1-bdrm., garage, close to Northrop, \$95. DA 9-0314. E

HOUSE, 2-bdrm., unfurn., aar., enc. yd., block from ocean in Manhattan Beach, \$110 mo. FR 9-4517. E

share of open frames. It's those little old spares that threw you, instead of you throwing them.

There's no good reason for it. You obviously won't make spares all the time. Even the best professionals miss sometimes. But you can make them a lot more consistently if you start out with one basic principle; spares are not as difficult as they seem, if you have the proper mental attitude and know where to roll the ball.

YES, TIMIDITY

For example, most bowlers miss too many spares because of timidity. Yes, timidity! They simply don't show as much courage on spare shots as they do when

By Dick Weber

shooting for strikes. Faced with a small target, they suffer a mental block, which frequently causes them to either stiffen up or get careless and alter the rhythm of their delivery.

Golfers do something like that when they pull back on a short iron shot. There's a lot in common between a "bogey" and an open bowling frame. You can't afford them. The solution? Believe in yourself — have confidence! That's the first rule in sparemaking. But confidence only goes so far. You've got to know the technique, too.

Put the ball out at all times, including the spare ball. Don't be delicate or aim for super accuracy. It just makes you tight and jerky in your movements. And once that happens, you've had it!

ALL THE ANGLES

Angle is most important. Get the correct basic angle, face your target—whether a spot or pin—shoulders square, feet pointed at the target. Walk in a straight line toward the target at the angle you choose and follow through the same way as when delivering a strike ball. Don't zig-zag. And concentrate! Even the "easy" spares can be tough.

Whenever possible, the basic rule of sparemaking is to knock down as many pins as possible with the ball itself—rather than by knocking one pin into another. When confronted with a 3-10 "leave," for example, it's better to roll the ball so that it will hit the inside of the 3 and then move on to take out the 10. Hitting the outside of the 3 and then hoping the pin will fly over against the 10 sometimes is successful, too, but not as often.

On single-pin spares, try to hit the pin dead center. Don't be satisfied with just knocking it down, but try to hit it just where it should be hit.

Comparatively easy single-pin spares are the 1-2-, 3-, and 5-pins, since they're part of the strike pocket you're used to shooting for. All other single-pin

PERSONALS

THANK YOU for the many flowers, messages of sympathy & understanding extended by our many friends at Northrop during the recent passing of our husband & father, Sherman "Buzz" Carroll. MRS. SHERMAN CARROLL & FAMILY. L

FOR SALE OR TRADE

DRAGSTER, Chrysler powered, slicks, tank, etc., \$695 or trade for Model "A" truck or roadster, V-8. 672-3482. M

PLAYPEN, \$8 or trade for 3 books Blue Chip stamps. EX 1-4106. M

"leaves" are tougher. The big big mistake bowlers make is in forgetting that their normal delivery must travel further to get to the pins. A hook ball bowler must adjust his delivery or angle to overcome that extra distance. A good straight-ball bowler has less difficulty on these spares. As for the deadly ten pin, you won't make it consistently unless you do crosslane shooting (move to the left on the approach and angle the ball across the lane into the pin).

Two pin spares, such as the 4-7 and 6-10, are common. These are tricky, because they seem so easy to make. The main pitfall is hitting the front pin too full, often

resulting in missing the other one entirely. Too thin a hit will also slide the front pin into the "channel" without even touching the remaining one. Remember the rule about letting the ball do most of the work—go for the pocket between the two pins.

THE DOUBLE WOOD

One toughie to convert is the "double-wood"—when one pin is directly behind another, such as the 2-8. This used to be even harder for casual bowlers because they often didn't even realize the second pin was still standing, as it was hidden from view.

As for the "double-wood" spare (as in the 2-8), a full hit is almost essential. Even if other pins are also standing, you still can't get a spare unless you angle the ball and roll it "through" the 2 pin.

The fit-in splits—the 5-6, 4-5, 2-3, 7-8, or 9-10—are extremely difficult. The way to make them is implied by the name—you fit the ball in between the pins.

The baby-split is a common leave also. It can be the 2-7 or

THE CHAMP

Dick Weber of the AMF Staff of Champions, is an all-star bowler who has captured nearly every title of importance in the bowling world, including victory in the BPAA All Star tournament at Miami Beach, Florida.

The Bowling Writers' Association of America conferred on Weber the coveted title, "Bowler of the Year." On the professional circuit, the thin man of bowling (he carries 124 pounds on a 5-9 frame) won five out of ten major titles.

3-10. Shooting at cross-angles, aim at the space between the pins.

The wider the split, of course, the harder it is to make. The 7-9 can only be made by hitting the 9 so thinly that it slides across to take care of the 7. The 8-10 is the same thing, only in reverse.

Generally, when you're confronted with wide splits straight across, it's wisest to shoot for one pin. Getting the spare is unlikely, and it's sometimes best to accept the open frame with a score of "9" than take the risk and wind up with a score of "8". That extra pin may be very important!

As for the 7-10, in opposite corners of the back row . . . Pray!

NORTHROP NORAIR NEWS

Issued biweekly by Norair Division of Northrop Corporation

Wednesday, January 20, 1965

HAWTHORNE

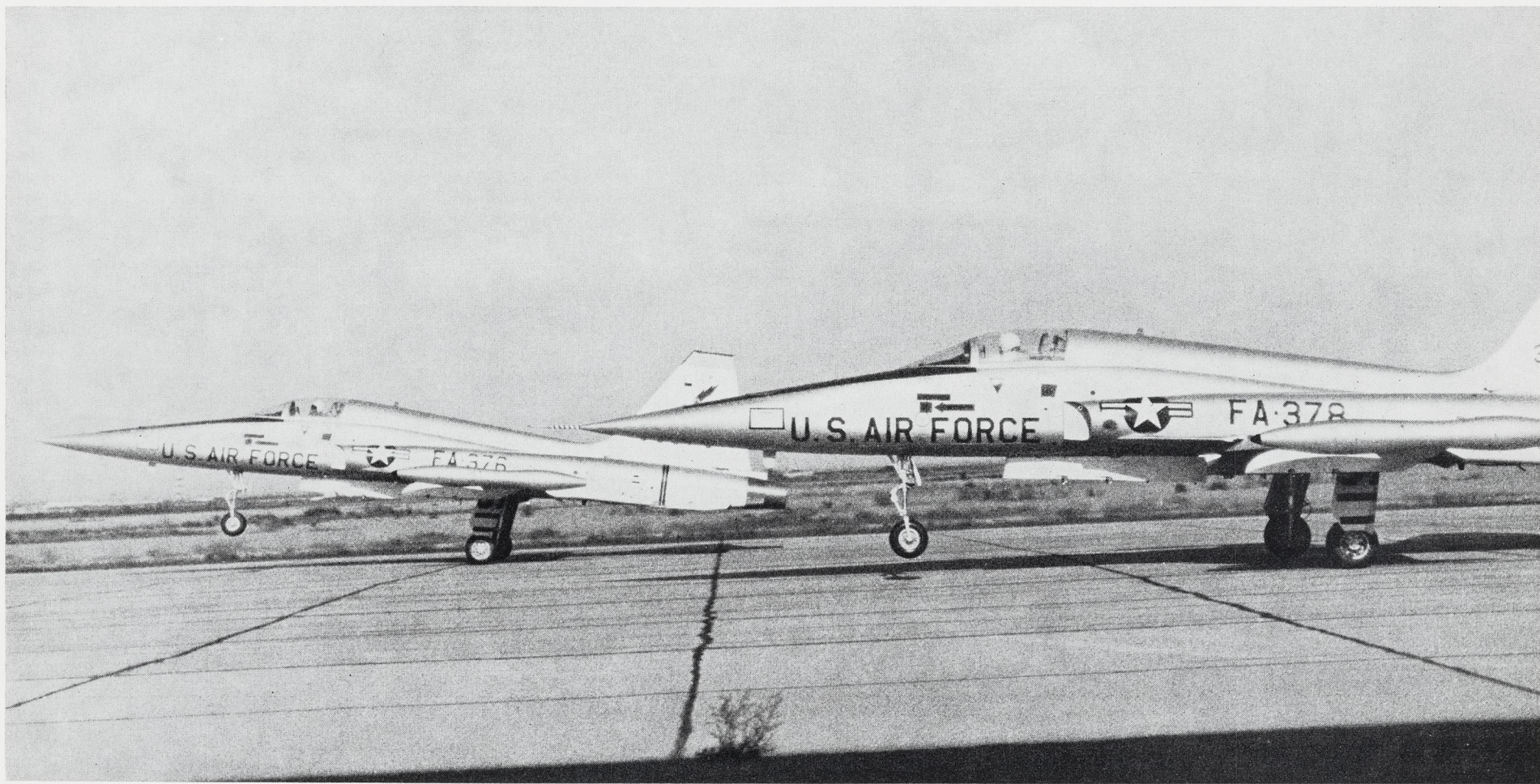
EL SEGUNDO

PALMDALE

EDWARDS AFB

SAN ANTONIO

SPAIN ORDERS F-5 FIGHTERS



SPANISH AIR FORCE TO PURCHASE 70 F-5 FIGHTERS—Spanish Ministry of Air announces initial order for 70 F-5 airplanes both single-seat and two-seat versions. Northrop and CASA (Construcciones Aeronauticas S.A.)

will cooperate on production. The F-5 fighter was selected after thorough evaluation of modern supersonic aircraft by Spanish Air Force experts. Touchdown photo was taken by Norair photographer Ron McGaffin.

Norair Dispatches C-5A Subcontract Proposals

The very first order of business as Norair people returned to work on January 4, was the ahead of schedule dispatch of the first of the Division's subcontract proposals on the C-5A.

C-5A is now official Air Force nomenclature for the CX-HLS (Cargo Experimental-Heavy Logistics System).

Norair bids will total 17 separate packages and dollar range all the way from \$50 to \$300 million.

Norair is lodging proposals for subcontract work with all three companies—Boeing, Douglas, and Lockheed—who are seeking prime responsibility on the new Air Force giant.

The first to go out was the Boeing package which was taken to Seattle on January 4. Douglas-Long Beach followed on January 11. Bids for Lockheed-Georgia are due out March 4.

The Department of Defense has set April 1 as deadline for the prime proposals to be in. Final selection of the prime and subcontract teams will be made some time this summer.

A major portion of the Boeing and Douglas proposal effort took place during the Christmas-New Year holiday week when a 50-man task force remained at the plant to assure meeting the dates specified.

All phases of plant activity

were represented: Administration, Finance, Technical, Marketing, Operations, Quality Control and the general manager's office.

In commenting on the C-5A effort, Norair General Manager Dick Horner stated, "I wish to compliment all members of the C-5A proposal team, and especially those who stayed on during the holiday, for their conscientious work in successfully meeting each critical deadline to date.

"As you know, the C-5A will be a highly competitive undertaking.

"Our experience over the years qualifies us as a logical contender.

"Our low cost, high quality, on schedule subcontract ability has been repeatedly demonstrated in such major undertakings as the McDonnell airplanes; the 707, 720 and KC-135; the XB-70 and many others. We are now also able to offer the customer the total use of our Integrated Management Systems program thereby meeting the government's advanced status reporting requirements."

Proposal project managers assigned are O. P. Omley, director, Production Operations for the Boeing program; and Don Warner, manager, Research and Development for the Douglas program. The Lockheed program

(Continued on Page 2)

Spanish Ministry of Air Calls for 70 Airplanes

The Spanish Air Force will be equipped with new Northrop F-5 supersonic tactical fighters, it has been announced in Madrid by the Spanish Ministry of Air.

Seventy of the Northrop-designed jet fighters will be ordered initially at a cost of approximately 2800 million pesetas (\$47 million).

First details of the Spanish order were carried to Norair Di-

vision personnel over the plant public address system by General Manager Richard E. Horner.

Construcciones Aeronauticas S. A. (CASA) and Northrop will cooperate on the production of the F-5 tactical fighter, including airframes, propulsion, weapon systems and ground support systems, spares and other components.

CASA is partially owned by Northrop. The Company increased its equity in the Spanish firm to 24 percent in 1963.

The program includes both single-seat and two-seat versions of the F-5 fighter, which has a speed of approximately 1000 mph and climbs at a rate of nearly 30,000 feet per minute.

The F-5 was selected after a thorough evaluation of modern supersonic aircraft by Spanish Air Force experts. It is one of the United States' most modern jet fighters and is now in large scale production at Northrop Corporation factories in California. Final assembly lines are located at Northrop's Norair Division, Hawthorne and Palmdale.

Able to carry 6200 pounds of bombs, rockets, guided missiles or other armament and fuel, the F-5s provide a versatile and effective fighter force. The F-5 can take off and land from an unprepared field and is the only supersonic fighter in service today that can take off at its maximum loaded weight from an unpaved runway. Powered by two jet engines, it can take off, carry

(Continued on Page 3)

Talons Set More Records—See Service on Many Fronts

The T-38 Talon supersonic trainer has set new records for flight hours and utilization with the Air Training Command.

The marks were established during the month of October when the ATC achieved 24,669 flight hours and 56.4 hours per airplane per month average utilization.

While setting the new records, the more than 400 T-38A aircraft in the ATC undergraduate pilot training fleet were kept flying at an average cost of only

11.8 maintenance man-hours per flight hour.

The utilization hours were the highest, and the maintenance hours the lowest, for any supersonic jet aircraft in the U.S. inventory.

The 500th Talon was delivered to the Air Training Command November 30.

Talons are seeing service on many fronts: as pilot instructor trainers at ATC Headquarters, Randolph Air Force Base, Texas;

(Continued on Page 2)

CHRISTMAS GIFT PROGRAM BRINGS HAPPINESS TO MANY

Christmas echoes. Most meaningful sounds to all who give and receive in honoring the birthday of the Prince of Peace.

The Christmas Gift program, Chairman Ed Bates, Quality Control, has brought an unprecedented outpouring of expression.

Telephone calls. Letters. Notes. Real, earnest, appreciative. Some poignant. Some cheerful, some sad.

This year 47 families had Christmas who without the gift program would have had none.

There were 81 boys, 115 girls made happier.

A large share of the contributions went to Pacific State Hospital at Spadra, the Spastic Children of Los Angeles, the Harbor General Men's Ward.

In addition to clothing, toys, and household necessities, a total of \$11,356.03 in cash was collected and distributed in the name of Santa Claus.

Norair man Kieth Flauding of Fabrication Dispatch — Unit 1, was instrumental in bringing in

Buena Park Explorer Post 79, Boy Scouts of America. The Post asked permission to take part and they brought a load of toys that caused dancing, bright eyes and shrieks of joy from deprived children.

The best insight to what the Christmas Gift program accomplished is gained from the letters received during the past two weeks.

The News prints a selection furnished by Marie Tully, Personnel Activities.



JUNIOR ACHIEVEMENT HONOR — Junior Achievement presidents of Norair-counseled companies Michael DeDonato of Norcraft, left, and Thomas DeFloria of Nor-desco, right, present Welko Gasich, vice-president and assistant general manager, Technical, with a citation acknowledging the Company's continuous J-A sponsorship for 11 straight years. Award presentation, which took place just before Christmas, also served for presidents DeDonato and DeFloria to brief Mr. Gasich on the sound management methods being practiced by their two firms. Mr. Gasich obligingly became a shareholder. Tom Brazil who is Junior Achievement coordinator for the Norair Management Club arranged the meeting.

Dear Mr. Bates:

It is not possible to express what Christmas meant to the girls on Ward I this year—nor could words convey adequate thanks.

If it could have been done, we would have given each one of you a "peep hole" to the ward on Christmas morning so you could see for yourself the miracle pictures being painted by your kindness and generosity. For the first time, each girl on the ward had a doll of her own, and for the first time, every girl received more than one present.

This "Christmas Spirit," which was like a bright lamp suddenly turned on, will last well into the year as the clothes are worn with pride and many interesting and inspired hours are spent in the schoolroom with the games and educational toys. The money you so generously donated will go toward purchasing playground equipment which will be of tremendous health and recreation value for the girls on the ward.

May this coming year bring to each one of you joy in an equal amount to that which you have given to the girls on Ward I.

C. P. BUIST, Chairman
Spadra Parents' Group
Ward I

★ ★ ★

Dear Friends:

Thank you for your lovely gifts. It was a delightful surprise and will be so useful.

I can never tell you how truly grateful I am for your help. Nothing can take the place of the wonderful friends I have.

My family had a wonderful Christmas and a happy New Year. God's blessings and our good wishes to all of you throughout 1965.

FAMILY 5

★ ★ ★

Dear Norair Friends:

In sending thanks, we find it difficult to express our feelings for the people who contributed their time and money.

Our family will always remember this Christmas.

All we can say is thank you and we hope you all have a very happy New Year.

FAMILY 39

With great difficulty, the father of Family 39 prepared this letter. He is a victim of multiple sclerosis. On Wednesday, we learned that his wheelchair collapsed. An organization at Norair requested that they be permitted to help. A check in the amount of \$140 bought a new one. (Marie Tully)

★ ★ ★

Dear Mrs. Tully:

Words cannot begin to express our feelings, but we would like to thank Northrop Corporation, the Northrop personnel, and you

for the most wonderful Christmas we have ever experienced.

We will be forever thankful and grateful for the help extended to us.

We sincerely hope that sometime in the future, we will be in the position to help another worthy family share the wonderful feelings we have just experienced.

Thank you from the bottom of our hearts and may God bless all of you.

PS—We do believe there is a Santa Claus.

FAMILY 38

★ ★ ★

A Christmas card read:

I thank all of you from the bottom of my heart for giving my children and I the best Christmas we ever had and one we will never forget. May God bless each and every one of you.

FAMILY 28

★ ★ ★

A POEM:

*Your thoughtfulness
Meant much to us,
That's why
We want to say,
"Our most sincere
And warmest thanks
Come with this card
Today."*

FAMILY 14

★ ★ ★

Dear Mrs. Tully:

Words can't express our gratitude and thanks for your kind and wonderful gifts at Christmas. I think at times like these a person realizes how many dear and wonderful people are in this world.

Both the children and myself join in wishing all of you a wonderful New Year.

FAMILY 21

Mrs. Marie Tully:

All of us would like to take this time to thank you and everyone responsible for making such a wonderful Christmas for our family. I didn't realize how small our Christmas would have been, had we not received such fine gifts and help from my fellow employees, and the AID program.

Sister is really thrilled with the wonderful typewriter. She does all of her homework on it. She used to borrow a neighbor's typewriter to do her homework, which most of the time was in use. The other three kids are very happy with their gifts.

It is hard to put in words how we really feel, but we'll just say thanks again.

FAMILY 37

Cleco Use

Last year Norair Division through wear, tear and attrition, consumed 126,875 "Clecos" at a total cost of \$26,250. Average cost—18¢ each.

*Reported by Ken Morse,
Standard Tool Planning*

Dear Mr. Mathes:

Please accept the profound gratitude of the Spastic Children's Foundation for the generous contribution from the people of your department.

Without the friendship, goodwill, and financial support of civic-minded citizens and organizations, the Training Center could not attain its goal—that of giving an outstanding service to the cerebral palsied children of Los Angeles County.

Our sincere and heartfelt thanks.

ANNE WENDT, Administrator
The Spastic Children's
Foundation

*The people of Product Support
sent a \$400 check.*

★ ★ ★

Dear Marie:

We are writing to thank you and everyone else who helped to make our Christmas a happier one. We are very grateful to you and the employees of Northrop for the presents and food. Our deepest thanks go to you all. We hope your Christmas was as nice or even nicer than ours, for without your help our Christmas may have been unhappy. Thank you one and all once again. Best wishes to you all for a happy New Year.

FAMILY 25

★ ★ ★

Dear Mrs. Tully:

We, Family 8, wish to thank all who took part in making our Christmas very happy.

All the kids were pleased with their gifts. There was much laughter.

Words can't express the thanks my husband and I have for you all.

Thanks again, may God bless all of you.

FAMILY 8

DISABILITY REFUNDS MIGHT BE DUE YOU

Disability insurance refunds for 1964 are now available, it is announced by the State of California Department of Employment.

You are entitled to claim a refund if you worked for two or more employers during 1964 and:

1. Received more than \$5100 in wages during the year for work in California.

2. Had deductions for disability insurance (either State or voluntary plan) taken from your wages.

3. The total of such deductions exceeded \$51.

Refund applications, form DE 1964, may be obtained from the Central Office of the Department of Employment, Sacramento or from any local office of the department.

The period for filing claims



M. C. HAENKE

Mr. Haenke was formerly manager of the Northrop Western Regional office located at the Corporate office, Beverly Hills, California.

Mr. Haenke was graduated from the University of Southern California in 1937 with a bachelor of science degree. He is a member of AIAA, AFA, the

for refunds is from January 1 through June 30.

For complete information call Personnel or write to Central Office of the Department of Employment, 800 Capitol Mall, Sacramento, California 95814.

Credit Union

Save or Borrow
Phone 617

Haenke Named Manager, F-5 Fighter Program in Iran

M. Churchill Haenke has been appointed assistant to the vice-president of the International Division and manager for the F-5 program in Iran, according to Patrick W. Timberlake, Corporate vice-president, International Division. Mr. Haenke and his family depart for Teheran this month.

Navy League, AUSA, American Ordnance Association, and the National Guard Association. He held the grade of Lt. Colonel in the USAAF during World War II.

C-5A Bids

(Continued from Page 1)
manager will be announced shortly.

The government's subcontracting program on the C-5A will set records for the industry. Boeing has already advised that they visualize at least a \$1 billion share being subcontracted in U.S. and Canada.

The airplane will probably be longer than a hockey rink and twice as wide as a standard moving van. It will be able to transport any type of army division equipment over transoceanic ranges and make combat area landings on soft, relatively unprepared airfields.

Records

(Continued from Page 1)
as the Air Force's basic supersonic undergraduate pilot trainer at Webb, Reese and Laughlin AFBs, Texas, Williams AFB, Arizona, Vance AFB, Oklahoma, and Moody AFB, Georgia; as space flight readiness trainers for NASA's astronauts; as advanced trainers and flight proficiency aircraft at the USAF Aerospace Research Pilot's School, Edwards AFB, California; and as chase aircraft in the X-15, XB-70 Valkyrie and C-141 Starlifter programs.

NORTHROP NORAIR NEWS

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NORAIR DIVISION

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CHARLES BRADFORD, Editor

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Computer Language Made Easy Via Graphs, Charts

No longer is the speed and power of the computer an awe-some phenomenon to the layman. He has come to accept this as a fact of life even though he may not understand or fully comprehend it. But he can grasp the reality of a machine turning out, not reams of printed lines of figures and codes which must be later analyzed, but neatly traced and easily read plots and graphs.

Of course it requires a kind of automation to reach this stage which is proving highly beneficial to scientists and engineers at Norair, Nortronics, Ventura and NSL. Skilled programmers of Northrop Data Processing, headquartered in Plant Two, will write instructions that permit conversion of the detailed information already on magnetic tapes into a graphic representation.

It takes a special computer like the S-C 4020 with its elongated cathode ray tube to complete the job. The physical conversion process from one mode or repre-

sentation to another occurs within the self-contained machine unit; and it is fast. The data on tape is translated into a form that is reflected on the face of the tube as line drawings or curved plots which in turn—and almost as a simultaneous action—are filmed by a camera mounted opposite the tube screen. The result is a manageable and storable microfilm. Or for direct recording on paper (hard copy), a second camera may be optionally used.

For those who like statistics, the S-C 4020, after accepting and recording data at ultra high speeds, can "print" at a rate of 5000 lines a minute. Viewed another way, the S-C 4020 is capable of producing a handy roll of 35mm microfilm in an hour's time. The same job would take a sister computing device 18 hours and over 10,000 printed pages of continuous forms.

Sid Powers of the Gas Dynamics branch in Norair's Research and Technologies section uses the computer-produced plots in two ways. He is experimenting in boundary layer studies which are aided immeasurably by the new device. "We can get 100 graphs in one day's run, a task that ordinarily requires an analyst two weeks to plot from the data," he cites. He and his colleagues also resort to the charting method to check the logic of other computer programs.

Frank Jacobs and Wally McLaughlin in Flight Test, find great utility in the S-C 4020 output. They are using the plots also as a timesaving and accurate tool, only this time on the test data of real aircraft flights. Scientists at NSL and Palos Verdes look to the technique to help resolve problems in orbital and tracking paths.

Only recently the utility of the computer-generated graphs has been finding favor in corners of the Corporation which deal with business applications. Instead of leafing through countless pages of printed output to analyze data, supervisors are now seeing the advantage of the daily plotting of business progress for cost analysis, manpower forecasts, production control. Likewise, PERT and other critical paths can be produced and updated on the S-C 4020 in seconds.



COMPUTER LANGUAGE—Muriel Behnke, programmer, and Elson Lui, system analyst, Northrop Data Processing, discuss program routine (on blackboard) which will help an NSL scientist reduce tracking data directly to plots via the S-C 4020. Elson holds a roll of plotted graphic output.

Norair's General Safety Committee



TOP MANAGEMENT SAFETY SUPPORT — Norair Vice-president and Assistant General Manager-Operations Bob Lloyd, seated at right, addressed December meeting of the Division's General Safety Committee. He reaffirmed top management unqualified support of committee work, spelled out importance of spick-and-span good housekeeping to continued success of the safety program. From left seated, R. C. Prueter, W. O. Lindstrand, J. K. States, Doris Haythorne, J. S. Breneman, director, night Operations and committee chairman. Standing, from left, Dr. R. J. Krebsbach, R. A. Balling, H. J. Roth, USAF; V. E. de Camp, R. H. Thornhill, R. L. Smith, R. B. Tompkins, R. B. Jackman, P. W. Parker, Ed Bates, L. B. Johnson, Harry Huencke, Pacific Employees group honored guest; and E. D. Kinsey.

Q and A On Savings Bonds

Question:

When is the most advisable or advantageous time to exchange E bonds for H bonds?

Answer:

Whenever a need for current income arises, most commonly at retirement time. Through such an exchange, the principal is retained intact; accrued interest on the E bonds does not need to be reported for tax purposes until the H bonds are redeemed; and regular Treasury checks for interest on the H bonds are mailed every six months.

Question:

Is it possible for a minor to redeem a Savings Bond issued in his name?

Answer:

Yes, provided he is sufficiently competent to sign his name to the request for payment and understand the nature of the transaction. Generally, the fact that the request for payment has been signed, and certified by the paying agent, is sufficient proof of competency.

Spain Buys 70 Fighters

(Continued from Page 1)

out a mission and land safely again, even with one engine not operating.

The Northrop F-5 jet tactical fighter provides maximum performance at minimum cost, and is the first military weapon system designed and developed by the United States specifically to meet military conditions and requirements throughout the free world.

F-5 supersonic tactical fighters were first ordered into quantity production by the U.S. Department of Defense in October 1962. This decision followed an intensive three-year test program and lengthy evaluation of the F-5 in competition with other U.S. and foreign aircraft.

The Norwegian Ministry of Defense announced on February 28, 1964 that it had decided to re-equip the Royal Norwegian Air Force with Northrop F-5 "Freedom Fighters." The procurement includes three squadrons of F-5 aircraft (64 F-5As and F-5Bs), plus spares and ground support equipment for delivery during the 1966-67 time period.

The first F-5A flew at Edwards Air Force Base, California, on February 28, 1964. First deliveries of F-5s to the U.S. Air Force Tactical Air Command occurred on April 30, 1964 for training of allied pilots under the Defense Department's Military Assistance Program (MAP). Williams Air Force Base, near Chandler, Arizona, was designated for training allied pilots and ground maintenance crews for the F-5 tactical fighter program. Approximately 275 students from five allied countries are scheduled to train at Williams in 1965.

On September 2, 1964 the U.S. Defense Department disclosed that among allied nations scheduled to receive the F-5 super-

Lights, Brakes, Exhausts, Lead Auto Failure Parade

Almost one out of every six vehicles failed to pass the voluntary nationwide 1964 National Safety-Check.

Of the three million cars and trucks Safety-Checked, nearly a half million were found to be in unsafe driving condition. As in years past, faulty lights topped the list of items needing attention. Hazardous brakes, exhaust systems and tires followed in order.

Owners of nearly 50 percent of vehicles failing the first Safety-Check had repairs made immediately and returned for a second check.

The annual Safety-Check is sponsored in May and June by Auto Industries Highway Safety Committee and Look Magazine, with the cooperation of the Association of State and Provincial Safety Coordinators. It is entirely voluntary and, in 1964, Safety-Checks were conducted locally by 3737 communities, counties, military installations, industrial plants, governmental agencies, teenage groups, new car and tire dealers and other organizations.

Thomas R. Reid, chairman of Auto Industries Highway Safety Committee and Ford Motor Company's director of civic and governmental affairs, noted that the 17th annual Safety-Check emphasizes two important points:

"When three million motorists voluntarily take their cars in for a Safety-Check, that shows the public wants to make sure the family car is in safe driving condition.

"Secondly, the 50 percent returning their cars promptly for a recheck, shows that motorists don't take lightly the finding that their cars are unsafe. Undoubtedly, a great many others who

found their cars were in hazardous shape had the faults corrected but did not return for a recheck."

The National Vehicle Safety-Check is the only nationwide program of its kind, conducted primarily in the 31 states not now requiring periodic motor vehicle inspection by law. Since 1954, more than 30 million vehicles have been Safety-Checked in the program.

It is sponsored in support of the Action Program of the President's Committee for Traffic Safety, to encourage the safe driving condition of all vehicles.

The following breakdown on the condition of items affecting safe driving:

Items Checked	% Items Rejected
Rear Lights	20.6
Stop Lights	12.8
Front Lights	13.4
Front Turn Signals	9.3
Rear Turn Signals	8.5
Brakes	8.4
Exhaust System	5.9
Tires	5.4
Windshield Wipers	4.2
Glass	3.0
Horn	3.0
Steering	3.0
Windshield Washers	1.6
Rear View Mirrors	.9
Total Vehicles	
Safety-Checked	2,921,894

**BUY
U. S.
SAVINGS
BONDS**

GOING MY WAY?



RIDES WANTED

7 a.m. — 3:45 p.m.

ORANGE & 37TH ST., Long Beach. G. J. Grummer, ext. 545. GA 4-6383. 2

7:30 a.m. — 4:15 p.m.

COMPTON OR MANHATTAN BEACH, Gardena. Ride for 3 needed. Betty Bahr, ext. 2259, OS 6-8517. 3

8 a.m. — 4:45 p.m.

BIRCH ST. & BROADWAY, Hawthorne. Evelyn M. Martin, ext. 1611, OS 9-7154.

SANTA MONICA BLVD. JUNCTION OF SAN DIEGO FWY., Santa Monica. E. E. Koons, ext. 2751. EX 4-3345. 5

RIDES OFFERED

7 a.m. — 3:45 p.m.

LOMITA & CRENSHAW, Lomita. Can take 3 people. M. D. Broun, ext. 2186. 12

8 a.m. — 4:45 p.m.

SANTA MONICA BLVD. JUNCTION OF SAN DIEGO FWY., Santa Monica. E. E. Koons, ext. 2751. EX 4-3345. 15

BBSF Classified Ads

BBSF classified ad service is provided free of charge to all Northrop Norair personnel.

Ads for agencies, commercial enterprises and private businesses are not accepted.

Deadline is noon Wednesday, one week before publication.

FOR SALE

PIANO, Victorian square grand, rosewood finish, \$450. 762-4310. A

HOUSE, 2-bdrm. in Manhattan Beach, fireplace, enclosed yd., one-half block from beach, \$17,500. FR 4-5028. A

MERCURY, 1956 custom 2-dr., r/h, good tires & brakes, \$295. 473-1071. A

REFRIGERATOR, International Harvester, frosttop freezer, \$75. 377-1094. A

HOME, 4-bdrm., 3-bath, 2500 sq. ft., view from Redondo Bch. hillside, financing avail., \$50,500. 373-1143. A

HOUSE, Rollins Hills, 3-bdrm., 2-bath, patio, fireplace, landscaped, fruit trees, near schools, newly decorated, 1650 sq. ft. \$42,750. 833-9747. A

RANGE, O'Keefe & Merritt, 36", chrome grill, \$48. 676-8279. A

HOME, Playa del Rey, 3-bdrm., 3-bath, PV rock fireplace, floating glass stairway, \$65,000. EX 8-1458. A

HAND SAW, 7" elec., 1 1/4 hp, hvy. duty w/ ball bearing slip clutch, \$30. 323-3424. A

BICYCLE, 20" boy's Schwinn, \$8. FR 5-5097. A

CORVAIR MONZA, 1962, r/h, 4-spd. trans., good tires, \$1225. 676-5972. A

ROLLER SKATES, Schneider, precision wheels, size 7, shoe-type, \$40. 361-7541. A

PLYMOUTH, 1953 convert., new tires, brakes, etc., \$199. 378-5348. A

DEER RIFLE, Springfield modified .30-40 Krag, \$20. Box 2201. A

STAUFFER TABLE w/timer, \$75. OS 6-2162. A

BEDROOM SET, 5-pc., Heywood-Wakefield, solid birch, matching lamps, \$250. TE 3-7306. A

ROTISSERIE, Black Angus, king-size, \$30. 377-5319. A

SKIN DIVING OUTFIT, used less than 10 times, pants, jacket & hood, 3/16" rubber, size 42 w/hvy. duty zippers, other access., complete \$50. DA 3-4257. A

PUP, dachshund, 1-yr.-old, \$10. 329-9484. A

END TABLE, inlaid walnut, \$20. Box 2202. A

SAW, elec., table model, \$15. PL 7-4305. A

FORD, 1956, 4-dr. sedan, Custom line V-8, auto., \$350. FR 4-8608. A

PORSCHE speedster, 1958, AM-FM radio, \$1600. PL 6-8455. A

YESPA, 125-cc, new paint & o/haul, \$145. 325-0341. A

AMPLIFIER, TEC 40-watt stereo, completely transistorized, incl. inclosure, 3"x10"x8", \$59. ST 8-9709. A

HOUSE, 4-bdrm., 2-bath, block wall fence, patio, fireplace, VA assumption, 1 1/2-yr.-old, in Garden Grove, \$24,500. 714-892-1319. A

FOR SALE

SAILBOAT, 14' Romeo-class fiberglass sloop w/all access. & cartop carrying rack, \$500. DA 3-8331. A

CHEVROLET, 1962 Super Sport Impala, 250-hp eng., p/b, p/s, factory aircond., w/w, pushbutton radio, \$2350. 274-1577. A

SKIS, 6' 9". Fisher Pioneer w/Eckel safety bindings, \$30. FR 5-0867. A

CHEVROLET, 1957, V-8, 4-dr., r/h, recently installed aen., battery, carb. & 4 new tires, \$550. 670-2346. A

UTILITY BOX, factory-made, metal, 6', for pickup truck, \$35. TO 2-7085. A

HANDBOOK of standard time data for machine shops, by Hadden & Genqer, \$5. PL 6-7284. A

TRAILER, luqaqae-type, 18.8 cu. ft., single wheel plus spare, 6-volt lights, chains & hitch, \$130. EX 4-3345. A

PONTIAC, 1948, \$35. OS 6-3057. A

CHRYSLER, 1963 New Yorker, 28,000 miles, new tires, \$3250. DA 3-2197. A

ACCORDION, 120-bass, Italian-made, student size w/case, \$75. 327-8582. A

SILVERWARE, silverplate, service for 8, \$9.90. 676-0418. A

VOLKSWAGEN, 1965, w/w, leatherette upholstery \$1850. OS 5-6076. A

RANGE, aas, Tappan, \$45. 751-0509. A

TR-3, 1960 roadster, \$102^c 430-3376. A

WASHER, wringer-type, Kenmore, \$35. 672-5578. A

RECEIVER, Fisher 500 AM-FM, mono., incl. wood cabinet, \$95. FR 5-9842. A

HOUSE, Rollins Hills, 1/2-acre level lot, 4-bdrm., 20'x40' pool, \$46,000. TE 2-4472. A

SKI BOAT, Merline, Elain 1961 motor & trailer, \$275. 679-8426. A

TAPE RECORDER, Bell, \$55. OS 9-1617. A

RENAULT Dauphine, 1957, \$195. 645-1489. A

REFRIGERATOR, GE, std. size w/crostop freezer, \$100. 672-0295. A

CAMERA, 35mm slide, Bolsey B-2, f/3.2 lens, 1/200 shutter spd., GE light meter, \$50. 323-0180. A

MERCURY, 1956, 2-dr., h/top, r/h, a/t, \$195. PO 2-7015. A

TR-4, coupe, 1963 w/1964 equip., 115-hp, Michelin tires, r/h, \$2500. 348-3383. A

GOLF CLUBS, men's starter set, \$20. OS 5-8802. A

STUDEBAKER sport coupe, 1953, auto., 6-cyl., 4 new w/w tires, \$115. DA 3-9887. A

T-BIRD, 1956, black porthole top, new eng., Fordomatic, new tires, full power, \$1450. OW 1-6670. A

RENAULT Dauphine, 1957, \$195. 645-1489. A

REFRIGERATOR, GE, std. size w/crostop freezer, \$100. 672-0295. A

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T-BIRD, 1956, black porthole top, new eng., Fordomatic, new tires, full power, \$1450. OW 1-6670. A

FOR SALE

CHILDCRAFT BOOKS, complete set, \$35. OS 5-6721. A

LINCOLN, 1955, \$100. 675-8405. A

PLYMOUTH station wagon, 1958, 9-pass., power equipped, \$545. GE 0-1245. A

AUSTIN HEALEY, Sprite MK II, 1962, \$1100. 379-7567. A

DISHMASTER, Delta w/pipe connectors, \$5. 675-0788. A

PLYMOUTH station wagon, 1958, 8-cyl., auto. trans., r/h, new tires & brakes, \$350. FR 5-7038. A

VACUUM CLEANER, Hoover Dial-A-Matic w/all attachments, \$50. DA 9-6848. A

TV radio phono. comb., 21", mahogany, \$65. OS 6-6390. A

CADILLAC, De Ville 1958, 35,000 mi., all power, air cond., prem. tires, \$1295. DI 7-3295. A

HONDA, Trail 55, 1963, 3200 miles, \$200. FR 9-9786. A

CHEVROLET, 1951 2-dr. sedan, 54,000 actual miles, needs tuneup, \$150. 291-7438. A

CHEVROLET, 1960, 9-pass. wagon, big eng., all power, 37,000 actual miles, \$1300. ST 9-9648. A

OLDSMOBILE 88 Holiday, 1956, r/h, auto., 1-owner, \$295. DA 9-3900. A

FORD station wagon, 1955, V-8, auto. trans., p/s, r/h, new tires, \$300. 670-2564. A

CADILLAC, Coupe de Ville, 1964, 2-dr., all power, 9000 mi., \$5000. FR 6-9173. A

FORD station wagon, 1958, r/h, p/s, Fordomatic, \$475. GA 3-1363. A

ACCORDION, 120-bass, 5 switches on treble, 2 switches on bass, \$125. FR 6-8327. A

CADILLAC, 1959 sedan, De Ville, all power, air w/w, \$1750. OS 6-5425. A

TYPEWRITER, L. C. Smith, \$25. PL 5-4497. A

BOWLING BALL, Columbia 300, aold, 15-lb. plus, \$10. UN 4-7673. A

CORVAIR MONZA 700, 1960, 4-dr., \$700. FR 7-3487. A

RANCHERO pickup, 1964, V-8, p/s, 4-spd. trans., smoa device, \$1900. 457-2979. A

VOLKSWAGEN, 1961, sunroof, radio, \$1150. FR 2-5367. A

RAMBLER, 1960 station wagon, 4-dr., super model, 6-cyl., auto., r/h, orig. owner, \$650. FR 5-5139. A

WASHER, Whirlpool automatic, \$30. 377-4489. A

TV, table model Zenith, 17", o/hailed, \$25. 645-3986. A

MATTRESS & box springs, w/frame, twin-size, 4-mos.-old, \$50. 676-0994. A

FORD, 1958 4-dr., V-8, auto., o/h motor, new tires, needs trans. \$250. Box 2203. A

OLDSMOBILE 88, 1958 2-dr. h/top, p/s, a/b, r/h, auto. trans., \$485. 596-1280. A

ACREAGE, 5, level, unrestricted zone, Lassen Co., Calif., \$1150. Box 2204. A

RANGE, Roper Charm w/proaam control & thermo controlled top burner, \$275. OR 8-1692. A

CEMETERY LOTS, 5, Inglewood, \$1650. OS 6-8842. A

CORVAIR MONZA, Spyder, 1962, many extras, \$1250. FR 7-2921, MA 6-8231. A

REFRIGERATOR, Westinghouse, \$25. 675-1031. A

PHONOGRAPH Decca stereo portable, \$35. 478-5732. A

HILLMAN, 1958 convertible, \$150. FR 4-7543, FR 4-7921. A

CHEVROLET, 1957, 6-cyl., needs work, \$250. FR 5-8935. A

COAT, white knit, size 12, \$40. PL 7-1972. A

FILE CABINET, full suspension, 4 or 5 drawer, GE 1-4233. B

STROLLER, in good condition, reasonable price. FR 9-6604. B

ECONOLINE station bus or Corvaire Greenbriar w/seats. 430-7721. B

GUNS, rifles or pistol in good condition, old western style. 292-4044. B

RANGE, aas, perfect working condition, lae, model desired Wedgewood C/P preferred, will consider other makes. DA 9-1307. B

FILE CABINET, full suspension, 4 or 5 drawer, GE 1-4233. B

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GUNS, rifles or pistol in good condition, old western style. 292-4044. B

FOR TRADE

EXPERIENCED man will trade landscaping work for car. OS 5-8062. C

RENTALS OFFERED

DUPLEX, 2-bdrm., lae, yard, closed aar., close to Northrop, \$110 mo. 370-4778. E

APT, 1-bdrm., furn., aaraae, \$87.50 mo. Box 2205. E

HOUSE, 3-bdrm., water & trash pd., children ok, no pets, \$150 mo. 371-6775. E

APT, 1-bdrm., unfurn., Gardena, aar., pvt. patio, adults only, no pets, \$78.50 mo. DA 9-9195. E

Annual Jet Flight Tour



LT. CHARLES "CASEY" FINNEGAN

Charles "Casey" Finnegan, Norair Customer Relations and lieutenant in the Naval Air Reserve, has recently completed his two weeks annual training duty. Mr. Finnegan, a jet pilot, flies an A4 Skyhawk at the Naval Air Station, Los Alamitos.

He is with jet attack squadron VA-772.

His training includes proficiency in instrument flying,

rockets, bombing and navigation. Mr. Finnegan spent six years active duty with the U.S. Air Force and four years of inactive duty with the Air National Guard prior to his transfer in the Naval Air Reserve program.

He has served Northrop as a pilot flying F-89s out of El Paso on the Ventura Division drone test program. He has also ridden as observer in the T-38 trainer and the F-5 fighter.

Gem & Mineral Club to Hold Open House at New Quarters

NRC Gem and Mineral Club Commissioners Lyle Claypool, nights, and Dan Kozlow, days, have announced an open house at their new workshop which is located in the former Plant Protection building, Crenshaw plant.

Date is February 14, a Sunday, from 1 to 6 p.m.

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